

~~SECRET~~

~~CONFIDENTIAL~~

US OFFICIALS ONLY

PROVISIONAL INTELLIGENCE REPORT

PLANT STUDY OF THE IRON AND STEEL INDUSTRY  
OF ECONOMIC REGION VII

CIA/RR PR-61

(ORR Project 23.178)

17 June 1954

DOCUMENT NO. 1  
NO CHANGE IN CLASS. 11  
DECLASSIFIED  
CLASS. CHNG. DATE 12-18-83  
01/1989  
4-10-79

NOTICE

The data and conclusions contained in this report do not necessarily represent the final position of ORR and should be regarded as provisional only and subject to revision. Comments and data which may be available to the user are solicited.

WARNING

THIS DOCUMENT CONTAINS INFORMATION AFFECTING THE NATIONAL DEFENSE OF THE UNITED STATES WITHIN THE MEANING OF THE ESPIONAGE LAWS, TITLE 18, USC, SECS. 793 AND 794. THE TRANSMISSION OR REVELATION OF WHICH IN ANY MANNER TO AN UNAUTHORIZED PERSON IS PROHIBITED BY LAW.

CENTRAL INTELLIGENCE AGENCY

Office of Research and Reports

US OFFICIALS ONLY

~~SECRET~~

~~S-E-C-R-E-T~~

~~CONFIDENTIAL~~

FOREWORD

This report covers those plants in Economic Region VII which produce metallurgical coke, pig iron, and steel ingots, as well as steel castings and other types of finished steel.

The primary intelligence value of this report lies in the basic evaluation of plant capacity of this region as a contribution to the capabilities of the USSR in the production of metallurgical coke, pig iron, steel, and finished steel products. The localization of industrial centers and individual plants and their importance in the Soviet iron and steel industry furnish valuable target information. Regional production estimates of the Soviet iron and steel industry also will serve as a check on Soviet statistics. Economic Region VII, Central Industrial, accounts for 6.7 percent of the steel ingots and steel for castings and 7.2 percent of the finished steel produced in the USSR. Plants of heavy industry in the region, including those covered by this report, consume much more steel than Region VII produces. Nine plants in Gorki Oblast account for 45.3 percent of the steel production, and 13 plants in Moscow Oblast for 37.7 percent.

This report is one of a series of regional provisional reports that will provide basic research data for a comprehensive study which is to be made on the iron and steel industry of the USSR.

- iii -

~~S-E-C-R-E-T~~

~~SECRET~~

CONTENTS

	<u>Page</u>
Summary . . . . .	1
1. Bezhitsa Locomotive Works . . . . .	3
2. Chernaya Kolunitsa Iron Works . . . . .	8
3. Chukhlinka Armament Plant . . . . .	9
4. Elektrostal Metallurgical Plant . . . . .	11
5. Gorki Armament Plant. . . . .	14
6. Gorki-Bor Shipyard. . . . .	17
7. Gorki Heavy Equipment Plant . . . . .	18
8. Gorki Metallurgical Plant . . . . .	21
9. Gorki Sheet Rolling Mill. . . . .	23
10. Gorki Wire Products Plant . . . . .	25
11. Ivanovo Machine Building Plant. . . . .	27
12. Kirov Armored Vehicle Plant . . . . .	29
13. Kirs Rolling Mill . . . . .	31
14. Klimkovo Iron Works . . . . .	32
15. Kolonna Locomotive Works. . . . .	34
16. Kosaya Gora Iron Works. . . . .	36
17. Kostroma Machine Building Plant . . . . .	39
18. Kulebaki Steel Plant. . . . .	41
19. Lipetsk Metallurgical Plant . . . . .	44
20. Lyublino Railroad Car Building Plant. . . . .	46
21. Moscow Automobile Building Plant. . . . .	48
22. Moscow Electrical Equipment Plant . . . . .	49
23. Moscow Machine Building Plant . . . . .	51
24. Moscow Shell Foundry. . . . .	53
25. Moscow Tube Mill. . . . .	54
26. Muron Forge Building Plant. . . . .	56
27. Muron Industrial Locomotive Plant . . . . .	58
28. Mytishchi Railroad Car Factory. . . . .	59
29. Novo-Lipetsk Metallurgical Plant. . . . .	61
30. Novokramatorsk Machine Building Plant . . . . .	63
31. Omutninsk Metallurgical Works . . . . .	65
32. Orekhova-Zuyevo Foundry . . . . .	67
33. Peskovko Iron Works . . . . .	69
34. Ramenskoye Metal Products Plant . . . . .	70
35. Shcherbakov Printing Machine Factory. . . . .	72
36. Sickle and Hammer . . . . .	73
37. Skopin Mining Machinery Factory . . . . .	78
38. Tula Metallurgical Works. . . . .	80
39. Vladimir Tractor Plant. . . . .	82

~~SECRET~~

~~SECRET~~

	<u>Page</u>
40. Voronezh Machinery Factory . . . . .	84
41. Vyksa Metallurgical Works. . . . .	86
42. Yaroslavl' Automobile Plant, . . . . .	88

Appendixes

Appendix A. Summary Tables . . . . .	91
Appendix B. Gaps in Intelligence . . . . .	117
Appendix C. Methodology. . . . .	121
Appendix D. Sources and Evaluation of Sources. . . . .	123

Tables

Table 1. Distribution of Production of the Iron and Steel Industry in Economic Region VII, by Oblast 1953. . . . .	2
Table 2. Iron- and Steel-Producing Plants and Steel-Rolling Mills in Economic Region VII, by Oblast . . . . .	4

Map

Following Page

USSR Economic Region VII: Iron and Steel Plants . . . . .	154
---	-----

- v -

~~SECRET~~

CIA/RR PR-61  
(ORR Project 23.178)

S-E-C-R-E-T

PLANT STUDY OF THE IRON AND STEEL INDUSTRY OF ECONOMIC  
REGION VII\*

Summary

Heavy industry, as represented by iron and steel, long has been established in the Central Region\*\* (Economic Region VII) of the USSR. Of the 42 plants embraced by this study, no less than 15 date back to the nineteenth century, and 3 were established in the eighteenth century.

The region's production of pig iron in 1953 was 8.5 percent of the production of the entire USSR, production of steel ingots and steel for castings 6.7 percent, and production of finished steel 7.2 percent.

Within the region as of 1953 there were 14 blast furnaces with a total capacity of 2,335,000 metric tons (MT) of pig iron per year. Part of this iron (probably about half) was devoted to iron castings, and the balance was consumed in steelmaking. There were 65 open-hearth furnaces with a total capacity of 2,075,000 MT, 57 electric furnaces with a total of 34,000 MT. Thus the total annual steelmaking capacity of the region was 2,585,000 MT. The production of finished rolled steel, steel forgings, and finished steel castings amounted to 1,972,000 MT in 1953.

Table 1\*\*\* presents the iron and steel production of Region VII in 1953, distributed by oblast. Listing is by order of importance with respect to production of steel ingots. It will be noted that most of the steel production is concentrated in the Gorki and Moscow Oblast, while most of the pig iron production is in the Tula and Voronezh Oblasts.

The location of steel production is convenient to markets, while pig iron production is relatively near raw materials. This arrangement, otherwise favorable, almost eliminates the advantage of utilizing hot metal for steel production, thus entailing a serious economic handicap.

\* The estimates and conclusions contained in this report represent the best judgment of the responsible analyst as of 1 May 1954.

\*\* The term region in this report refers to the economic regions defined and numbered on CIA Map 12048.1 (9-51) (First Revision, 7-52), USSR: Economic Regions.

\*\*\* Table 1 follows on p. 2.

S-E-C-R-E-T

S-E-C-R-E-T

Table 1

Distribution of Production of the Iron and Steel Industry  
in Economic Region VII, by Oblast  
1953

Thousand Metric Tons									
<u>Oblast</u>	<u>1953 Production</u>			<u>Regional Percent</u>			<u>National Percent</u>		
	<u>Pig Iron</u>	<u>Steel Ingots</u>	<u>Finished Steel</u>	<u>Pig Iron</u>	<u>Steel Ingots</u>	<u>Finished Steel</u>	<u>Pig Iron</u>	<u>Steel Ingots</u>	<u>Finished Steel</u>
Gorki	81	1,149	979	3.5	45.3	49.6	0.1	3.0	3.6
Moscow		957	707		37.7	35.8		2.5	2.6
Kirov	62	217	155	2.6	8.6	7.8	0.1	0.6	0.5
Bryansk		100	65		4.0	3.2		0.4	0.3
Yaroslavl		36	21		1.3	1.1	3.9	0.1	0.1
Voronezh	1,069	35	20	45.8	1.3	1.1	3.9	0.1	0.1
Kostroma		19	10		0.8	0.5			
Vladimir		15	9		0.6	0.5			
Ryazan		5	3		0.2	0.2			
Ivanov		4	3		0.2	0.2			
Tula	1,123		3	48.1			4.4		
Total	<u>2,335</u>	<u>2,537</u>	<u>1,972</u>	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>	<u>8.5</u>	<u>6.7</u>	<u>7.2</u>

The relatively minor part of the Soviet iron- and steel-producing industry situated in Region VII is distributed among many small plants, only one of which is a completely integrated operation. A number of these plants are merely the steel foundry departments of important manufacturing operations.

S-E-C-R-E-T

S-E-C-R-E-T

In addition to the 42 iron- and steel-producing plants and steel rolling mills covered by this study, Region VII contains 119 plants operating in the field of iron and steel. Of these, 81 are iron foundries (some operating strictly as commercial foundries and some integrated in the manufacture of end products consuming iron and steel), and 38 are plants engaged in various phases of steel processing, fabricating, and assembly.

Many of the plants discussed in detail in this study, such as the Novokramatorsk Machine Building Plant at Elektrostal and the large armament plants at Gorki and Moscow, are of more importance as steel consumers than as steel producers. Indeed, this is the key to heavy industry in this entire region, which consumes much more iron and steel than it produces.

As will be gathered from the foregoing, although this area surrounding Moscow is of prime importance as a manufacturing center, it has not been chosen by the Russians for heavy participation in post-World War II expansion of iron and steel. The reason for this is twofold. First, the coal found in the area, while plentiful, is not of a quality suitable for the production of metallurgical coke. Secondly, the iron ore found in the area, while both plentiful and with substantial deposits of good quality, is so unfavorably situated with respect to soil conditions and other features that its exploitation has been relatively unimportant to date. At the present time, serious efforts are being put forth to develop this iron ore, known as the Kursk Anomaly, and if these efforts meet with success, a stimulus will be provided to iron and steel production in Region VII, where abundant sources of power are available and a substantial market for steel products is at hand.

Individual iron- and steel-producing plants and steel-rolling mills treated in this report are listed in Table 2\*, grouped by oblast.

---

1. Bezhitsa Locomotive Works (also known as Krasnyy Profintern). 1/ (IR 7010252)

a. Location.

53°19' N - 34°19' E, Bezhitsa, (sometimes called Ordzhonikidzograd 2/), Bryansk Oblast, Central Industrial Region, RSFSR, USSR. It is on the line of the Moscow-Kiev Railway, 3/ at the confluence of the Bolva and Desna rivers. 4/

b. History and Development.

A rail and structural shop was established here in 1873. A steel foundry was added in 1876. Between 1880 and 1890 new equipment was installed and the plant became primarily a locomotive and railroad car building shop. Three blast furnaces were built between 1890 and 1900. These furnaces were

\* Table 2 follows on p. 4.

S-E-C-R-E-T

S-E-C-R-E-T

Table 2

Iron- and Steel-Producing Plants and Steel-Rolling Mills  
in Economic Region VII, by Oblast

	Thousand Metric Tons		
	Pig Iron	Steel Ingots and Steel for Castings	Finished Steel
<u>Gorki Oblast</u>			
Vyksa Metallurgical	81	350	250
Kulebaki Steel Plant		270	200
Gorki Heavy Equipment Plant		215	135
Gorki Armament Plant		187	112
Novokramatorsk Machine Building Plant		76	46
Gorki Metallurgical Plant		45	32
Gorki-Bor Shipyard		6	4
Gorki Wire Products Plant			160
Gorki Sheet Rolling Mill			40
<u>Moscow Oblast</u>			
Sickle and Hammer		340	245
Elektrostal Metallurgical Plant		290	200
Iyublino RR Car Building Plant		100	65
Kolomna Locomotive Works		78	48
Moscow Automobile Building Plant		40	24
Chukhlinka Armament Plant		30	18
Moscow Shell Foundry		24	14
Ramenskoye Metal Products Plant		15	43
Mytishchi RR Car Factory		14	8
Moscow Electrical Equipment Plant		13	8
Orekhova - Zuyevov Foundry		10	6
Moscow Machine Building Plant		3	2
Moscow Tube Mill			26
<u>Kirov Oblast</u>			
Omutninsk Metallurgical Works		125	87
Kirs Rolling Mill		90	67
Kirov Armored Vehicle Plant		2	1
Chernaya Kholunitsa Iron Works	26		
Peskovko Iron Works	20		
Klinkovo Iron Works	16		

S-E-C-R-E-T

Table 2

Iron- and Steel-Producing Plants and Steel-Rolling Mills  
in Economic Region VII, by Oblast  
(Continued)

	Thousand Metric Tons		
	Pig <u>Iron</u>	Steel Ingots and Steel <u>for Castings</u>	Finished <u>Steel</u>
<u>Bryansk Oblast</u>			
Bezhitsa Locomotive Works		100	65
<u>Yaroslavl' Oblast</u>			
Shcherbakov Printing Machine Factory		30	17
Yaroslavl' Automobile Plant		6	4
<u>Voronezh Oblast</u>			
Voronezh Machinery Factory		35	20
Novo-Lipetsk Metallurgical Plant	672		
Lipetsk Metallurgical Plant	397		
<u>Kostroma Oblast</u>			
Kostroma Machine Building Plant		19	10
<u>Vladimir Oblast</u>			
Murom Forge Building Plant		5	3
Murom Industrial Locomotive Works		5	3
Vladimir Tractor Plant		5	3
<u>Ivanovo Oblast</u>			
Ivanovo Machine Building Plant		4	3
<u>Tula Oblast</u>			
Kosaya Gora Iron Works	573		
Tula Metallurgical Works	550		
Total	<u>2,335</u>	<u>2,537</u>	<u>1,972</u>

- 5 -

S-E-C-R-E-T

S-E-C-R-E-T

fueled with charcoal and operated on Krivoi Rog ore, but for some unknown reason these furnaces were not successful and were dismantled in 1902. 5/ Modernization was begun in 1929, 6/ and as of January 1936 the plant had an open-hearth shop, one 400-mm roughing mill, one 250 mm-bar mill, and one Erhardt tube mill. 7/ Soon after the outbreak of World War II and before the invading Germans reached the area, all movable equipment and facilities of this plant were evacuated to Krasnoyarsk. 8/ 9/ The Germans occupied and operated the plant for a considerable period during World War II. 10/

c. Raw Materials and Other Inputs.

Cast iron in the form of pigs is received from the Ural area. 11/ Scrap and fuel oil are delivered by rail. 12/ Timber is rafted down the Bolva River. 13/ Steel alloying materials are received from unknown sources via Moscow. Sand comes from local pits, and limestone from local quarries. 14/

d. Coal and Coke.

Coal and coke are delivered daily by rail 15/ from the Donets area. 16/

e. Ironmaking Facilities.

There is an iron foundry with 2 oil-fired cupolas, each with capacity of 10 MT per hour. 17/ Supplementary equipment consists of 3 coal-fired drying ovens and 2 sand-molding machines. 18/

f. Steelmaking Facilities.

There are 4 oil-fired open-hearth furnaces, each of 25 MT capacity. These furnaces produce ingots for rolling 19/ and steel for casting in the steel foundry, which is equipped with 6 molding machines and 1 annealing furnace. 20/ It is estimated that this shop produces 100,000 Mt of ingots and steel for castings per year, based on 3 heats per day per furnace.

g. Primary rolling Mills.

There is one 400-mm 3-high breakdown mill. 21/

h. Finishing Facilities.

There are four oil-fired reheating furnaces. 22/ These furnaces serve a 250-mm 3-high bar mill, a 3-high skelp mill, and a tube mill, all of German origin. 23/

S-E-C-R-E-T

i. Intraplant Services.

The plant operates a power station with one Russian turbogenerator of 20,000-kw capacity, and one German turbogenerator of 15,000-kw capacity. The plant also uses 20,000 kw brought from outside sources. There are 4 transformer stations in the plant which reduce line power to 380 volts, three-phase AC. 24/ Industrial water is derived from the nearby Desna River 25/ and is pumped into the plant by a pumping station operated by the plant. 26/ An elevated storage tank holds a reserve of industrial water. 27/ Drinking water comes from the Bezhitsa water supply. 28/ A spur from the Roalovl-Bryansk Railroad leads into the plant and reaches all receiving and shipping points. 29/ Auxiliary operating facilities include a foundry cleaning shop with sandblasters, hammers, chisels, and grinders; 30/ a machine shop equipped with lathes, drills, shapers, and various other machine tools; 31/ and a forge shop with one United 2,000-MT hydraulic press, one 5-ton steam hammer, 8 smaller steam hammers, and 5 oil-fired forge furnaces together with various shears and saws. 32/ There is a galvanizing unit with four galvanizing baths. 33/

j. Products and Production.

From the rolling mills come angles, channels, tees, and other shapes; rounds, squares, and flat bars; and narrow plates. The tube mill produces boiler tubes. From the steel foundry come bogie wheels for armored vehicles, spiders for locomotive and tender wheels, and various other steel castings as required for locomotive and railroad car construction. 34/ The gray iron foundry produces railroad car wheels and various other car and locomotive parts. Some miscellaneous objects such as valves, weights, safes, and household equipment are sometimes produced here. 35/ The total production of finished steel in 1952 is estimated at 65,000 MT.

k. Distribution.

All steel produced at this plant is consumed by the plant fabricating and assembly shops for the output of railroad locomotives and cars, armored vehicles, cranes, and other items of heavy industrial equipment. 36/

l. Plant Efficiency.

Only two-thirds of the finished output of the gray iron foundry is reported as usable. 37/ There is an unduly large proportion of defective material in the output of the steel foundry. 38/ In 1951 rejects, owing to careless preparation of molds and molding sand, from both foundries were reported at the rates of 30 percent to 60 percent. Molds often broke because of pressure from gas. Furnaces were not carefully handled and workers were reported as lacking in interest. 39/

- 7 -

S-E-C-R-E-T

S-E-C-R-E-T

m. Administration.

Bezhitsa Locomotive Works operates under the direction of the Ministry of Transport in Moscow, which is under the Ministry of Transport and Heavy Machine Building. 40/

n. Personnel.

Key personnel include Ambrovakin, Director 41/; Marchin, Deputy Director; and Kolshenko, Chief Engineer. 42/

2. Chernaya Kholunitsa Iron Works. (IR 7010610)

a. Location.

58°51' N - 51°42' E, Chernaya Kholunitsa, Kirov Oblast, Central Industrial Region, RSFSR, USSR. 1/

b. History and Development.

This plant appears to have been founded in 1808. Prior to 1917 it was known as Cherlakhoulumitski Iron Works. The present blast furnace was rebuilt and put into operation in 1929. 2/ 3/

c. Raw Materials and Other Inputs.

This is a charcoal-burning furnace, and fuel is readily available inasmuch as the location is in a hardwood area where the production of charcoal is no serious problem. Iron ore also is derived locally, from the deposits in the Kirov Basin. 4/

d. Coal and Coke.

No information available.

e. Ironmaking Facilities.

There is one charcoal-burning blast furnace, 72-cu m volume. The rated production capacity is 26,000 MT per year. 5/

f. Steelmaking Facilities.

None.

g. Primary Rolling Mills.

None.

S-E-C-R-E-T

S-E-C-R-E-T

h. Finishing Facilities.

None.

i. Intraplant Services.

No information available.

j. Products and Production.

The estimated output of pig iron is 26,000 MT in 1953.

k. Distribution.

Presumably this pig iron is consumed by foundries in the nearby area.

l. Plant Efficiency.

The plant is reported as overfulfilling the plan for production of cast iron in 1946. 6/

m. Administration.

This plant belongs to the Republic Metallurgical Trust under the Ministry of Metallurgy. 7/

n. Personnel.

No information.

3. Chukhlinka Armament Plant (also known as Voennyi Zavod No. 48). 1/  
(IR 9014844)

a. Location.

55°44' N - 37°46' E, Moscow Oblast, Central Industrial Region, RSFSR, USSR. This plant is situated in the village of Chukhlinka, district of Perovo, in the southeast outskirts of Moscow. 2/ It is on the Moscow-Ryazan highway, about 1 km south of the Chukhlinka railroad station. 3/

b. History and Development.

The plant appears to have been established about 1930. During recent years, some additions have been made, but no further developments are known to be under consideration. 4/ No war damage was experienced, perhaps because

S-E-C-R-E-T

S-E-C-R-E-T

most of the movable equipment was transported to the area of the Urals at the onset of hostilities in 1941. Everything was brought back in 1946, and by 1949 operations were completely reestablished. 5/

c. Raw Materials and Other Inputs.

Inputs include scrap, pig iron, lime, and sand for molds. 6/

d. Coal and Coke.

The plant receives 400 MT of coke and 120 MT of coal by rail each month. 7/

e. Ironmaking Facilities.

There is an iron foundry with four coke-burning cupolas. 8/

f. Steelmaking Facilities.

There is a steel foundry with two electric furnaces that appear to have been recently installed. These furnaces are 5 m in diameter and 4 m in height. 9/ It is estimated that they have a steel capacity of 15 MT each, and produce a total of 30,000 MT per year.

g. Primary Rolling Mills.

None.

h. Finishing Facilities.

None.

i. Intraplant Services.

Electricity comes from an unidentified source in Moscow, through a transformer station at the plant. The plant is served by switches of Soviet-gauge railroad track. 10/

j. Products and Production.

Products are steel castings for bomb parts, artillery carriage parts, mining machinery parts, 11/ and ball bearing races. 12/ Production of finished castings is estimated at 18,000 MT per year.

k. Distribution.

The entire output of the steel foundry is consumed by the plant. 13/

S-E-C-R-E-T

1. Plant Efficiency.

No information available.

m. Administration.

Operation of this plant is under the control of the Soviet Air Force. 14/

n. Personnel.

No information available.

4. Elektrostal Metallurgical Plant (sometimes called Noginsk Steel Works, also known as Belyayeva). 1/ (IR 7012270)

a. Location.

55°47' N - 38°28' E, Elektrostal, Moscow Oblast, Central Industrial Region, RSFSR, USSR. The site is 60 km east of Moscow, and 7 km south of Noginsk. 2/

b. History and Development.

The earliest record of steel production at Elektrostal is 1934, and in that year rolling mills appear to have been installed also. 3/ The official designation of this community as the town of Elektrostal took place in 1938. 4/ A partial record of the development of steel and finished steel production is as follows:

<u>Thousand Metric Tons</u>		
<u>Year</u>	<u>Steel Ingots</u>	<u>Finished Steel</u>
1934	75	42
1935	78	56
1940	170	127
1952	247	183 <u>5/ 6/ 7/</u>

At the time the Germans menaced Moscow, parts of the Elektrostal plant were evacuated to Sverdlovsk and to Molotov, but the evacuated units were returned to Elektrostal during the summer of 1942, and by October of that year everything was back in operation. 8/ Elektrostal now has the second largest electric furnace capacity in the USSR. 9/

S-E-C-R-E-T

S-E-C-R-E-T

c. Raw Materials and Other Inputs.

Oil comes from the Baku area, which represents a rail haul of about 2,000 km. 10/ Dolomite is shipped from Satka, which lies about 1,000 km to the east. 11/ In 1943, pig iron and scrap were received from unknown sources in amounts of 20,000 MT and 200,000 MT respectively. 12/ Water is distributed throughout the plant by an underground piping system; the source of water is unknown. 13/

1. Coal and Coke.

Fuels are locally mined peat, and an inferior grade of brown coal which comes from the area around Moscow. 14/

e. Ironmaking Facilities.

None.

f. Steelmaking Facilities.

Steel-producing facilities at Elektrostal are as follows: 2 tilting open-hearth furnaces, 23-sq m hearth area each, estimated capacity 60 MT each; 5 electric furnaces, Demag type, 25-MT capacity each; 1 electric furnace, Heroult type, 15-MT capacity; 3 electric furnaces, Heroult type, 8-MT capacity each; 1 electric furnace, Greaves type, 3-MT capacity; 1 electric furnace, Union of Electric Trust type, 3-MT capacity; 4 electric furnaces, Heroult type, 1.5-MT capacity each; and 1 electric furnace, high-frequency, 1.4-MT capacity. 15/ Although ingot production in 1952 appears to have been only 247,000 MT 16/ (78,000 MT open-hearth and 169,000 MT electric), it is quite possible that this tonnage may have been geared to requirements, as the maximum annual production capacity of these furnaces probably is about 304,000 MT (97,000 MT open-hearth and 207,000 MT electric). Estimated steel production in 1953 is 290,000 MT (92,000 MT open-hearth and 198,000 MT electric).

g. Primary Rolling Mills.

There is a blooming mill, 3-high, with 800-mm diameter rolls. 17/

h. Finishing Facilities.

There are 3 finishing mills which are described as follows: 1 heavy bar mill, 3-high, one stand 660-mm and two stands each with 610-mm-diameter rolls; 1 strip mill, 4-high, 5 stands each with 350-mm-diameter rolls;

S-E-C-R-E-T

and 1 light bar mill, 3-high, with 450-mm and 300-mm-diameter rolls. 18/ Finishing facilities include 21 heat-treating furnaces, and 25 cold-drawing machines. 19/

i. Intraplant Services.

Electric power is produced very cheaply by using locally mined peat as fuel. The powerplant that serves Elektrostal generates 78,000 kw. 20/ There is a forge shop equipped with four large steam hammers which are occupied mainly in producing crankshafts for tanks. Also this shop contains 10 small, electrically operated drop hammers, and 6 oil-fired heat treating furnaces. 21/

j. Products and Production.

Elektrostal produces only high-quality steels, making special grades for such end uses as turbine blades; valves; fusing wires for electric bulbs; delicate electrical, radio, and telephone equipment; and other complex instruments. 22/ In addition to its production of stainless steel, heat-resistant steel, and high-speed tool steel, Elektrostal has produced no less than 200 new alloys since the end of World War II. 23/ 24/ These new alloys include special nonmagnetic steels, and also unusual alloys such as 35-percent nickel steel. 25/ The output of finished steel products in 1952 is reported to have been 183,000 MT. 26/ These products include forgings, shell casings, armorplate, boiler and other high-quality plate, tool steel bars and other bars, sheets, and strip. 27/ It should be emphasized that Elektrostal is a quality producing plant, where the primary aim is to make new and improved grades of steel rather than to follow established patterns of production. Some special grades are produced at Elektrostal in extremely small quantities and at tremendous expense as compared with ordinary grades. 28/ It is presumed that this accounts in large part for the fact that these furnaces may not realize their full production potential. Estimated finished steel production for 1953 is 200,000 MT.

k. Distribution.

Principal consuming locations for Elektrostal products include Moscow, Gorki, Molotov, and Ufa. 29/ Elektrostal supplies more than 100 manufacturers with high-quality stainless and alloy steels. Among chief consumers are aircraft builders and ball bearing manufacturers. 30/ Alloy and stainless products of Elektrostal are used by Stalmogorsk and Svir power stations and by powerplants for Donbas, Kuzbas, and Moscow area coal mines. 31/ Stainless steel produced at Elektrostal was used for the stainless trim on the Kremlin and in Moscow subway stations. 32/

S-E-C-R-E-T

1. Plant Efficiency.

Based on reports from various types of sources and covering most of the period since the end of World War II, it must be concluded that Elektrostal is a well-managed and efficiently operated plant. The steel melting plan for November 1946 was exceeded by 8 percent. The rolled steel plan for the same month was exceeded by 14 percent. 33/ By 1947 the plant had achieved rolling levels set for 1950. 34/ The steel production plan for May 1947 was exceeded. 35/ By April 1948 the melting norm for 1950 had been achieved. 36/ By 1949 steel production had increased 48 percent over prewar levels. In 1950, furnace No. 4 achieved production of 6.77 MT per 1,000 kw of electric power, exceeding the progressive norm by 0.9 percent. The rest of the shop then pledged to exceed the performance of furnace No. 4 in 1951, to increase production by 1 percent above the progressive norm, and to make 63 heats of steel between furnace linings. 37/ A rigorous policy governing scrap selection has resulted in important conservation of scarce alloys. 38/ The time per melt in certain furnaces has been cut from 5.83 hours to 5.71 hours. 39/ Elektrostal has learned how to produce nitrided stainless steel and reduce nickel requirements by as much as 40 percent. 40/

m. Administration.

The Elektrostal plant belongs to Glavspet'stal, which is under the Chief Administration of the Metallurgical Industry. 41/

n. Personnel.

The Director (in 1948) was M.E. Koreshkov. 42/ The Chief Engineer (in 1951) was M. Zuyev. 43/ There were 6,000 employees in 1943, 44/ and presumably the number is approximately the same today.

5. Gorki Armament Plant (also known as Novoye Sormovo, and as Stalin Plant No. 92). 1/ (IR 7011918)

a. Location.

56°20' N - 44°00' E, Gorki Oblast, Central Industrial Region, RSFSR, USSR. 2/ This plant is in Sormovo, a suburb of the city of Gorki. It is northwest of the center of Gorki, and southeast of the Volga River. The Gorki-Balakhna Railroad borders the plant on the northeast side.

S-E-C-R-E-T

b. History and Development.

A plant for the production of armament was started at this site during the 1920's. 3/ It was modernized in 1934, and was expanded during World War II. It is the second most important armament plant in the USSR, ranking next to Molotov Gun Plant. 4/ The plant appears to have escaped war damage, although there are some bomb craters within the plant area. These craters are kept filled with water for fire-fighting purposes. 5/

c. Raw Materials and Other Inputs.

Pig iron comes from Magnitogorsk by rail at a rate of about 300 tons per day. Scrap is received by rail from various sources; a large stock is always on hand. Limestone comes from local sources. 6/ Ferro-manganese and ferrosilicon are received by rail from Zestafoni. 7/ Nickel, chrome, and lead come from the Ural area via Kazan'. 8/ Petroleum is delivered by barge from Baku via the Volga, and is pumped direct from barge to the plant. Paints, lacquers, lubricants, pipe, and steel shapes are received as needed under requisition. 9/

d. Coal and Coke.

Coal in undetermined quantity is received by rail daily from the coalfields centering around Stalinogorsk. 10/

e. Ironmaking Facilities.

There is an iron foundry with two cupolas. 11/

f. Steelmaking Facilities.

Steel for the steel foundry and for the rolling mill is produced in 8 open-hearth furnaces, each of 30-MT capacity. These furnaces are tapped every 10 hours, and thus have a capacity of 187,000 MT per year, which is their estimated production in 1953. 12/ The furnaces are oil-fired. 13/ In addition to castings, they produce ingots of circular section, 1.2-m high, 75-cm diameter at the base, and 50-cm diameter at the top. 14/

g. Primary Rolling Mills.

In the rolling department there are 5 soaking pits and a rolling mill with 5 stands of rolls in train. 15/ This mill produces billets, both round and square, to be processed in the forging department. 16/

- 15 -

S-E-C-R-E-T

S-E-C-R-E-T

h. Finishing Facilities.

There is a steel foundry, and also a forge, well equipped with presses and hammers. 17/

i. Intraplant Services.

There is a machine shop appropriately equipped with machine tools. Electric power is derived from a power station at Balakhna, via a high-tension line carrying 75,000 volts. This voltage is appropriately stepped down by transformer stations within the plant. 18/ The plant is served throughout by a Soviet-gauge railroad. 19/

j. Products and Production.

The direct products of the steel department are steel castings, such as armored vehicle parts, 20/ gun mount parts, and pump housings; 21/ and forging billets to be converted into gun barrels, shells, 22/ axles, crankshafts, handtools, and the like. 23/ The production of finished products is estimated to be 52,000 MT of steel castings, and 60,000 MT of forgings, or a total of 112,000 MT in 1953.

k. Distribution.

Some finished steel is shipped away from time to time to destinations unknown, but most of the castings and forgings produced here are consumed by the home plant in armament fabrication and assembly. 24/

l. Plant Efficiency.

In 1948 production activities were intense but disorganized, with 100 people doing the work of 30. 25/

m. Administration.

This plant operates under the Ministry of Defense Industry. 26/

n. Personnel.

The foundry alone has about 240 employees. The plant works 3 shifts per day, 7 days per week. 27/ Amo Serge Yelyan was Director in 1942. 28/ Samsanov was Assistant Director in 1949. 29/

S-E-C-R-E-T

6. Gorki-Bor Shipyard (also known as Teplotkhod). (IR 7000744)

a. Location.

56°20' N - 44°00' E. This plant is on the north bank of the Volga River in Gorki-Bor, a suburb of Gorki, Gorki Oblast, Central Industrial Region, RSFSR, USSR. 1/

b. History and Development.

Two electric furnaces of 3-MT capacity each were installed and put into operation here in 1935. 2/ Some alterations were made in 1941, when the plant was converted to the production of armament for the duration of the war. 3/ 4/

c. Raw Materials and Other Inputs.

Steel and iron scrap is consumed in the amount of 5,000 MT per year. 5 year. 5/ Electric power comes from the city of Gorki. 6/

d. Coal and Coke.

Coal is received from the Donets Basin. 7/

e. Ironmaking Facilities.

None.

f. Steelmaking Facilities.

There are 2 electric furnaces with a combined capacity of 6 MT. These furnaces produce 6,000 MT of steel for castings per year. 8/

g. Primary Rolling Mills.

None.

h. Finishing Facilities.

There is a steel foundry. 9/

i. Intraplant Services.

No information available.

S-E-C-R-E-T

j. Products and Production.

Products are exclusively steel castings for ship construction and marine engines. 10/ The output of finished castings is 4,000 MT per year, part of which is alloy steel. 11/

k. Distribution.

The entire output of steel from the furnaces and foundry is consumed by the local shipyard. 12/

l. Plant Efficiency.

No information available.

m. Administration.

The plant is administered by the Ministry of Shipbuilding. 13/

n. Personnel.

No information available.

7. Gorki Heavy Equipment Plant (also known as Krasnoye Sormovo Shipyard and sometimes called A.A. Zhdanov Shipyard. It is Plant No. 112). (IR 7007098)

a. Location.

56°20' N - 44°00' E. Plant No. 112 is in Sormovo, a suburb that lies a little northwest of the city of Gorki. The plant is on the south bank of the Volga River, about 6 km upstream from its confluence with the Oka. 1/ Sormovo is in Gorki Oblast, Central Industrial Region, RSFSR, USSR. 2/

b. History and Development.

Krasnoye Sormov celebrated its 100th anniversary in July 1949. 3/ The plant was modernized between the two World Wars. The steelmaking facilities provide steel exclusively for the plant fabricating operations, which before World War II consisted of the construction of railroad locomotives and cars, heavy machinery, and light river and lake craft. During World War II, the plant was occupied exclusively with the construction and repair of armored combat vehicles. 4/ At the end of the war, reconversion was made promptly to prewar activities, with emphasis on the production of submarines. 5/ World War II damage was slight, and has been repaired. 6/

S-E-C-R-E-T

c. Raw Materials and Other Inputs.

Pig iron in the form of pigs weighing 40 kg is received by barge from unknown sources. 7/ Oil comes from the Baku region by barge and by tank car. 8/ Scrap is derived from local sources, as well as from unknown sources by barge. Limestone and magnesite are received by barge. 9/ The plant water supply is piped from the Volga River. 10/

d. Coal and Coke.

Coal for the local powerplant and for miscellaneous heating purposes is received by rail from the Donets Basin. 11/

e. Ironmaking Facilities.

There is an iron foundry with two cupolas. 12/

f. Steelmaking Facilities.

To provide steel for the steel foundry and the rolling mills, there are 8 open-hearth furnaces with an estimated capacity of 40 MT each and combined hearth area of 153 sq m, and 2 electric furnaces of 3.5 MT capacity each. 13/ Total steel production for 1953 is estimated at 215,000 MT (207,000 MT open-hearth and 8,000 MT electric).

g. Primary Rolling Mills.

The rolling department is equipped with a steam-powered 14/ 700-mm blooming mill. There are four stands of rolls, of which the first stand is reversing. 15/

h. Finishing Facilities.

Finishing rolling facilities consist of 1 bar mill 510-mm, with 4 stands of rolls; 1 bar mill 350-mm, with a roughing stand 470-mm and 6 finishing stands each 350-mm; and 1 plate mill, 3-high, with rolls of 750/500/750-mm diameter and 2-m long. 16/ All of these mills are steam-powered. 17/

i. Intraplant Services.

Steelmaking facilities are supplemented by a steel foundry with molding shop, 18/ an iron foundry, a machine shop, 19/ and a drop forge shop. 20/ There is a shop that turns out solid forged and rolled steel wheels.

S-E-C-R-E-T

This shop has 1,500-MT-capacity press that rough-forms the wheel from a disc, a 50-MT-capacity press that punches out the center, and a rolling mill that rolls the web and rim to finished dimensions. 21/ The plant is serviced throughout by a Soviet-gauge railroad, and also operates a fleet of 30 trucks. 22/ Krasnoye Sormovo has its own coal-fired power station of 4,000-kw capacity, and derives supplementary power from the large electric power station at Balakhna. 23/

j. Products and Production.

The principal products of the foundry were cast steel turrets and bogie wheels for tanks during World War II, and since the war have been miscellaneous castings for railroad equipment and water craft. 24/ The rolling mills produce armorplate up to 3.5 m long, up to 1.8 m wide, and up to 30 cm thick. 25/ Other rolling mill products are ship plates up to 5 m long, flats, rounds, squares, angles, channels, and tees. 26/ Forged products include propeller shafts and railroad car wheels. 27/ End products of Krasnoye Sormovo are railroad locomotives and cars, small ships, Diesel engines, field pieces, and armored combat vehicles. 28/ The production of Krasnoye Sormovo may be summarized as follows:

<u>Thousand Metric Tons</u>		
<u>Year</u>	<u>Steel</u>	<u>Rolled Steel and Finished Castings</u>
1934	84	53
1935	91	75
1952	206	129
1953 (est)	215	135

k. Distribution.

All of the steel produced here is consumed at the home plant.

l. Plant Efficiency.

In 1948 the year's plan was fulfilled as follows: steel production, 116 percent; rolled steel, 116 percent; and castings, 123 percent. 29/ In contrast to this good showing, it was reported that 30 percent of production was rejected on account of poor workmanship. 30/

S-E-C-R-E-T

S-E-C-R-E-T

m. Administration.

This plant is under the Ministry of Transport and Heavy Machine Building. 31/

n. Personnel.

Simonov was Director in 1944. 32/ N.N. Smelyakov was Director in 1950. 33/

8. Gorki Metallurgical Plant (also known as Kaganovich, Plant No. 113). 1/  
(IR 7001476)

a. Location.

56°20' N - 44°00' E. This plant is located on the west bank of the Oka River about 14 km from its confluence with the Volga 2/, in the city of Gorki, Gorki Oblast, Central Industrial Region, RSFSR, USSR. 3/

b. History and Development.

The plant was established 10 to 15 years before the beginning of World War II, and all steelmaking facilities were in operation as long ago as 1935. 4/

c. Raw Materials and Other Inputs.

Pig iron at a rate of 20,000 MT per year is received from unknown sources. Scrap in the amount of 25,000 MT per year is procured through normal commercial channels, of which the most important is the home plant. 5/

d. Coal and Coke.

Coal is received from the Donets Basin. 6/

e. Ironmaking Facilities.

There is a gray iron foundry with three cupolas. 7/

f. Steelmaking Facilities.

There is 1 open-hearth furnace with hearth area of 15.05 sq m. The estimated capacity of this furnace is 40 MT, and annual output is estimated at 30,000 MT. There are 2 electric furnaces, each with a capacity

S-E-C-R-E-T

S-E-C-R-E-T

of 7.5 MT. 8/ These electric furnaces are estimated to produce 15,000 MT per year. Total steel production in 1953 is thus estimated at 45,000 MT. These furnaces cast small ingots, weighing about 800 pounds each. 9/

g. Primary Rolling Mills.

There is a 4-stand billet and slab mill that produces billets 10 cm x 10 cm x 30 cm and slabs of unknown dimensions. This mill is served by three oil-fired heating furnaces. 10/

h. Finishing Facilities.

There are two finishing mills. One is a 2-high bar mill of four stands, with rolls of 250-mm diameter. This mill is rated at 20,000 MT annual capacity. There is also a plate mill, 3-high, with rolls of 600/500/600-mm diameter. This mill is rated at 36,000 MT annual capacity. 11/

i. Intraplant Services.

The plant is served by the Moscow-Gorki railway, which runs two switches into the plant. 12/ A narrow-gauge system also serves the plant. 13/ Five Studebaker trucks are used to supplement intraplant transportation. 14/ Serving both the steelmaking facilities and the adjacent machine tool manufacturing plant are 3 machine shops, 2 foundries, and a forge shop with 4 heating furnaces, 4 drop hammers, and 1 press. 15/

j. Products and Production.

Products are carbon steel, alloy steel, and tool steel, 16/ in the form of armorplate and bars. 17/ Armorplate is produced at a rate of 80 tons per day or approximately 24,000 tons annually. 18/ Production in 1953 is estimated at 32,000 MT of finished steel.

k. Distribution.

Almost all the steel produced here is consumed by the adjacent machine tool factory. 21/

l. Plant Efficiency.

The plant is reported as making steel in excess of plan during the early part of 1952. 22/

m. Administration.

The plant is under the Ministry of Metallurgy. 23/

S-E-C-R-E-T

n. Personnel.

In 1943 there were 3,000 employees, of whom 70 percent were women. 24/

9. Gorki Sheet Rolling Mill (also known as Kravdnaya Zavod). 1/  
(IR 7043580)

a. Location.

56°20' N - 44°00' E. This mill is situated near the northeast limit of Gorki Bor, a suburb of Gorki, in Gorki Oblast, Central Industrial Region, RSFSR, USSR. The exact site is 3 km north of the Volga River and 500 m northeast of the Bor-Kirov Railway. 2/

b. History and Development.

At or near the location of an established plant manufacturing metal furniture and other household goods, ground was broken in August 1947 for the installation of a strip mill and allied facilities being brought from Germany. 3/ As of October 1948 the mill had been set up but was not yet in operation. 4/

c. Raw Materials and Other Inputs.

No information available.

d. Coal and Coke.

No information available.

e. Ironmaking Facilities.

None.

f. Steelmaking Facilities.

None.

g. Primary Rolling Mills.

None.

h. Finishing Facilities.

S-E-C-R-E-T

h. Finishing Facilities.

The mill is a sheet or strip mill that was shipped from Germany and relocated here. 5/ There are 4 stands of rolls 6/ served by 3 Soviet-built oil-fired heating furnaces. 7/ Auxiliary equipment brought from Germany includes an Achenbach-Busch-Huetten straightening press, a Junkers flattener, and 2 German shears, 8/ one of which is capable of shearing thicknesses up to 15 mm. 9/

i. Intraplant Services.

Power is received from the Bor electric power station, which is just north of the mill. 10/ There is a transformer station within the plant area which reduces the line voltage to 220 volts AC. 11/ Water supply comes from a well in the plant area. 12/ A switch from the Bor-Kirov Railway enters the plant and connects with loading and unloading points. 13/ An oil supply is kept in concrete underground oil bunkers. 14/

j. Products and Production.

The product of this mill is believed to be hot-rolled strip suitable for automobile bodies and fenders, 15/ in an amount estimated at 40,000 MT in 1953. (See Gaps in Intelligence).

k. Distribution.

The main outlet for the product of this mill is Gorki Motor Vehicle Plant, Molotov No. 1, in Gorki. A secondary outlet is Gorki Armament Plant Novoye Sormovo, Stalin No. 92, also in Gorki. 16/

l. Plant Efficiency.

No information available.

m. Administration.

No information available.

n. Personnel.

No information available.

S-E-C-R-E-T

Gorki Wire Product Plant (also known as Krasnaya Etina). 1/ (IR 7011913)

a. Location.

56°20' N - 44°00' E, Gorki, Gorki Oblast, Central Industrial Region, RSFSR, USSR. 2/ The plant is near the center of the city of Gorki, a little to the west of the Oka River, and about 10 km from the confluence of the Oka and Volga rivers. The Moscow - Dzerzhinsk Railroad is 1 km north of the plant. 3/

b. History and Development.

The wire and wire product mills and other facilities were installed in 1928. 4/ This plant appears to have escaped damage during World War II. 5/

c. Raw Materials and Other Inputs.

About ten 40-ton carloads of billets are received every day to provide raw material for the wire factory. These billets are 12 cm x 12 cm x 4½ m long, source unknown. Fuel oil for heating the furnaces, and coal for the power plant are delivered every day in tank cars and gondola cars respectively. Quantities and sources of these fuels are unknown. 6/

d. Coal and Coke.

No information available.

e. Ironmaking Facilities.

There is a foundry with 3 cupolas, each of 3-m diameter, 4-m height. 7/

f. Steelmaking Facilities.

None.

g. Primary Rolling Mills.

None.

h. Finishing Facilities.

There is one oil-fired continuous heating furnace. There is a rod mill consisting of 1 roughing stand of 500-mm, 8 intermediate stands

S-E-C-R-E-T

of 280/250 mm, and 4 finishing stands of 250 mm. There are two mills for rolling strip. One is an Eliss mill; it has 3 stands 4-high, and produces strip 0.4 to 4.5 mm thick. The other is a Robertson cold-rolling mill; it has 3 stands 4-high, and produces cold-rolled strip 0.16-mm minimum gauge by 350-mm maximum width. 8/ 9/ Finishing facilities include wire-drawing machines with the customary annealing, acid-bath, oiling, liming, and galvanizing adjuncts. There are automatic machines for the manufacture of nuts, screws, and bolts, as well as nails in a large range of sizes. 10/

i. Intraplant Services.

The plant has its own power station, with 3 coal-fired, steam-powered turbines, generating 3,500 kw. This powerplant was built in 1941. 11/ Industrial water is derived from the water system of the city of Gorki, and is stored in a tower in the plant area. 12/ The plant is served by Russian-gauge railroad, with sidings at all key points, connecting with the Moscow-Dzerzhinsk Railroad. 13/

j. Products and Production.

Products are wire, barbed wire, nuts, screws, bolts, nails, hoops, and bands. The plant produces a wide range of consumer products, including leaf springs, bushings, washers, wheel rims, electric irons, electric switches, light fittings, power plugs, bedsprings, bedframes, and the like. 14/ Another important item of production is motorcycles, which are assembled here, incorporating wire and other items produced at the plant. 15/ The wire produced here ranges in size from 1 mm to 5 mm in diameter. 16/ A special product is Nikolin wire, which is a high-resistance electrical wire. 17/ At least 180 MT of steel wire are shipped away daily. 18/ Approximately 12 tons of nails are shipped away daily. 19/ Nails range in size from 1 mm thick by 8 mm long, to 8 mm thick by 80 mm long. 20/ Production of cold-rolled strip in 1953 is estimated at 100,000 MT, production of wire and wire products in the same year at 60,000 MT. 21/ 22/ 23/

k. Distribution.

Some of the wire produced here is consumed within the plant through further processing into nails and other wire products, some goes to the plant department that assembles motorcycles and uses wire for wheel spokes, and the like, and some is shipped to destinations unknown. Screws are shipped by rail to the Zis automobile factory in Moscow. Nails are shipped by rail to various points, including Ural'sk, Moscow, and Leningrad. 24/

S-E-C-R-E-T

S-E-C-R-E-T

1. Plant Efficiency.

In 1947 the plant was reported to be grossly inefficient in accounting. Pilferage was not unusual, and products of the plant were often encountered in black markets of the local area. 25/ Operations were carried on with a notoriously high percentage of waste, and large quantities of defective material were always lying about. 26/

m. Administration.

The plant is under the administration of the Ministry of Machine Building. 27/

n. Personnel.

There are about 4,000 employees, operating in 3 shifts. 28/

11. Ivanovo Machine Building Plant (also known as Torfmash Mine Equipment Factory). 1/ (IR 1024202)

a. Location.

57°23' N - 34°30' E. This plant is situated immediately east 2/ of the main station of the Ivanovo-Moscow Railroad in Ivanovo, Ivanovo Oblast, Central Industrial Region, RSFSR, USSR. 3/

b. History and Development.

The plant was built in 1944. 4/

c. Raw Materials and Other Inputs.

Pig iron, scrap, 5/ and molding sand are received by rail. 6/

d. Coal and Coke.

No information available.

e. Ironmaking Facilities.

There is a gray iron foundry with two small cupolas. 7/

f. Steelmaking Facilities.

The steel-casting shop contains 2 electric furnaces of 2 tons capacity each. 8/ Estimated steel production in 1953 is 4,000 MT.

S-E-C-R-E-T

g. Primary Rolling Mills.

None.

h. Finishing Facilities.

Steel foundry.

i. Intraplant Services.

The plant operates a forge and a machine shop. 9/ In connection with the steel foundry there are a molding shop and a drying shop. 10/ The plant is served by a spur from the Soviet-gauge Ivanovo-Moscow Railroad. 11/

j. Products and Production.

The steel output of this plant is represented by castings and forgings such as gears, wheels, axles, and other parts 12/ required for the heavy machinery that is the end product of the plant. 13/ Estimated production of finished steel is 2,000 MT per year.

k. Distribution.

The entire steel production of this plant is consumed by the associated manufacturing operations.

l. Plant Efficiency.

One quarter of the output of finished steel is rejected because of inferior quality or workmanship. 14/

m. Administration.

The plant is under the Ministry of Heavy Machine Building. 15/

n. Personnel.

There are 250 employees. 16/

12. Kirov Armored Vehicle Plant (also known as Kuibyshev Armament Plant, Plant no. 38 1/, and as May 1st 2/ Crane Factory). (IR 8013403)

a. Location.

S-E-C-R-E-T

S-E-C-R-E-T

12. Kirov Armored Vehicle Plant (also known as Kuybyshev Armament Plant, Plant No. 38 1/, and as May 1st 2/ Crane Factory). (IR 8013403)

a. Location.

58°33' N - 49°42' E. This plant is located at Kirov, Kirov Oblast, Central Industrial Region, RSFSR, USSR. 3/ The exact site is 3 km north-northeast of the Kirov railroad station, 1 km east of the railroad between Kirov and Kotlas. 4/

b. History and Development.

The original installation dates back to 1905, 5/ but the modern plant was built during the decade preceding World War II. 6/ The plant as it now exists is made up in part by the armor department of Plant No. 174 (Voroshilov) evacuated from Leningrad, and in part by the armored vehicle department of the Kuybyshev plant evacuated from Kolomna in October 1941. 7/ Although no war damage was sustained, the plant was generally refurbished by German prisoners of war in 1945. 8/

c. Raw Materials and Other Inputs.

Sand, loam, pig iron, and iron and steel scrap are received from unknown sources. 9/

d. Coal and Coke.

Coal and coke are received from unknown sources. 10/

e. Ironmaking Facilities.

There are two gas-fired 11/ cupolas 12/ which operate during alternate weeks, resulting in a production of 25 MT of gray iron castings per day. 13/ One gas-fired furnace is devoted to annealing these castings. 14/

f. Steelmaking Facilities.

There is a steel foundry 15/ equipped with one electric furnace of 2-MT capacity. This furnace is tapped 3 times per day and produces 2,000 MT of steel per year. All of this steel is devoted to the production of steel castings. 16/ The estimated output of this furnace in 1953 is 2,000 MT.

g. Primary Rolling Mills.

None.

S-E-C-R-E-T

S-E-C-R-E-T

h. Finishing Facilities.

A core furnace, a molding floor, a sand mill, and a cleaning shop are adjuncts to the steel foundry. 17/ Operated in connection with the steel foundry is a forge shop with 6 heating furnaces and 6 steam hammers. Castings and forgings are finished in a machine shop equipped with milling, drilling, planing, and turning machines. 18/

i. Intraplant Services.

A supply of industrial water comes from the Vyatka River. 19/ Power comes through an overhead high-tension line from a central power station at Kirov. 20/ There is a transformer station at the plant that steps down the AC voltage from 500 to 380 volts. 21/ The plant is served throughout by a network of narrow-gauge railway trackage, 22/ supplemented by a fleet of 15 motor trucks. 23/

j. Products and Production.

The electric furnace steel is used for castings such as gearwheels, pistons, and cylinders that are used as parts for cranes, armored vehicles and other machines produced as end products of this plant. 24/ The furnace also casts ingots 80 cm x 45 cm x 30 cm that are forged into crankshafts, axles, and other parts of the end products turned out by the plant. 25/ 26/ Output of finished steel castings is estimated at 1,000 MT in 1953.

k. Distribution.

The entire output of both the steel foundry and the gray iron foundry is consumed in the production of the cranes, tanks, assault guns, and the like, made at this plant. 27/

l. Plant Efficiency.

About one-third of the castings produced here are defective because of shrink holes, and sometimes a whole series of track wheels has to be sent to the scrap heap. 28/

m. Administration.

The plant is under the Ministry of Railr ad Transport. 29/ 30/

n. Personnel.

The foundries are operated on 3 shifts, with about 100 workers on each shift. 31/

S-E-C-R-E-T

13. Kirs Rolling Mill (also known as Kirs Steel Plant). 1/ (IR 7002828)

a. Location.

59°21' N - 52°14' E, Kirs, Kirov Oblast, Central Industrial Region, RSFSR, USSR. Kirs is about 160 km northeast of Kirov 2/ 3/ on the Molotov Railroad, near Omutninsk. 4/

b. History and Development.

An iron works at this site is supposed to have been founded in 1773. Until 1917 the operation was known as Kirsinski Iron Works. In 1944 the plant employed 1,600 workers. 5/

c. Raw Materials and Other Inputs.

40,000 MT of pig iron per year is supplied from blast furnaces in the Urals. 60,000 MT of scrap per year is procured through normal commercial channels. Iron ore comes from the Urals. 6/

d. Coal and Coke.

Coal comes from the Donets Basin. 7/

e. Ironmaking Facilities.

None.

f. Steelmaking Facilities.

The plant has 2 open-hearth furnaces, each of 50-MT capacity. 1953 production is estimated at 90,000 MT. 8/

g. Primary Rolling Mills.

It may be presumed that the 600-mm heavy bar mill listed under h serves as a breakdown mill for the 280-mm bar mill and for the sheet mill.

h. Finishing Facilities.

There is a heavy bar mill with two stands of rolls. This is described as a 3-high mill, 600-mm-diameter rolls. In addition to breaking down ingots into blooms and slabs, this mill probably

S-E-C-R-E-T

S-E-C-R-E-T

finish-rolls some of the larger sizes of bars. The light bar mill also has two stands of rolls. It is a 3-high mill, 280-mm-diameter rolls. There is a third mill, which is not designated as to type, but which probably is an old-style, 550-mm hand-operated sheet mill with 2 stands of rolls. Wire-drawing facilities (not further described) are available. 9/

i. Intraplant Services.

This plant is served by a spur from the Kirov-Molotov Railroad. 10/ Power is derived from a nearby power plant (TETs), exact location of which is unknown. Capacity is 87,000 kw, with increase planned to 187,000 kw. 11/

j. Products and Production.

The products of this plant are plates (including armorplate), sheets, merchant bars, and tool steel bars. 12/ 13/ 14/ Estimated 1953 production of finished steel is 67,000 MT.

k. Distribution.

A large portion (possibly 24 percent) of the output of this plant is shipped to Plant 38 (Crane Factory imeni 1st of May) at Kirov. 15/ Wire is shipped to Kuybyshev GES and to the Volga-Don Canal project. 16/ Other outlets for the products of this plant are the refineries of the Kirov and Gorki Oblasts. 17/

l. Plant Efficiency.

No information available.

m. Administration.

Kirs Rolling Mill is under the Ministry of Metallurgy. 18/

n. Personnel.

There were 4,000 employees operating in 3 shifts in 1942. 19/

14. Klimkovo Iron Works. 1/ (IR 7010969

a. Location.

58°55' N - 51°15' E, Klimkovo, Kirov Oblast, Central Industrial Region, RSFSR, USSR. 2/ Klimkovo is on a spur railroad track, 70 km. from the main Kirov-Molotov Railroad. 3/

S-E-C-R-E-T

b. History and Development.

This plant appears to have been founded in 1810. Prior to 1917, it was known as Iron and Steel Works in Klimkovski. 4/ After being rebuilt, the present blast furnace was put into operation in 1928. 5/

c. Raw Materials and Other Inputs.

Iron ore is procured from local sources in the Kirov Basin. 6/ Charcoal is produced locally from hardwood forests of the area. 7/

d. Coal and Coke.

Coal, which is used for miscellaneous purposes, but not for coking, comes from the Donets Basin. 8/

e. Ironmaking Facilities.

There is one charcoal-burning blast furnace, with 73 cu m volume. The rated iron-producing capacity originally was 10,000 MT per year, 9/ but this stack is reported to have produced at the rate of 0.65 MT per cu m per day in 1948, which is equivalent to about 16,000 MT per year. 10/ Estimated production in 1953 is 16,000 MT.

f. Steelmaking Facilities.

None.

g. Primary Rolling Mills.

None.

h. Finishing Rolling Mills.

None.

i. Intraplant Services.

No information available.

j. Products and Production.

The output of this furnace is pig iron, probably of the type known as foundry iron. Estimated production in 1953 is 16,000 MT. 11/

S-E-C-R-E-T

k. Distribution.

Production probably is entirely consumed by iron foundries in the general area.

l. Plant Efficiency.

No information available.

m. Administration.

This operation is under the Ministry of Metallurgy. 12/

n. Personnel.

Unknown.

15. Kolomna Locomotive Works (also known as Kuybyshev RR Locomotive Plant). 1/  
(IR 7011091) 1/

a. Location.

55°05' N - 38°45' E. This plant is in Kolomna, about 2 km from the confluence of the Oka and Moskva rivers. The exact location is opposite the railroad station of the Kolomna-Ryazan line in the suburb Golutvino, in the Moscow Oblast, Central Industrial Region, RSFSR, USSR. 2/

b. History and Development.

This plant was founded in 1871 and until the 1917 Revolution was known as Corporation of Kolomna Machinery Construction. The main item of production always has been railroad locomotives. 3/ Plant equipment was evacuated to Kirov and Krasnoyarsk in 1941, but operations of the plant at Kolomna were resumed in July 1943. 4/ There was considerable war damage, but reconstruction had been completed by 1946, at which time the plant was enlarged. 5/

c. Raw Materials and Other Inputs.

In 1943 inputs included 20,000 MT of pig iron, 40,000 MT of scrap, 6/ petroleum from the Baku area, and iron ore from Krivoi Rog and the Ural Region. 7/

d. Coal and Coke.

Coal is received from the Donets Basin. 8/

S-E-C-R-E-T

e. Ironmaking Facilities.

There is an iron foundry with six small cupolas. 9/

f. Steelmaking Facilities.

There are 4 open-hearth furnaces with a combined hearth area of 52 sq m, and one 3-ton electric furnace. 10/ The total 1953 production of these furnaces is estimated at 78,000 MT (75,000 MT open-hearth and 3,000 MT electric). The open-hearth furnaces are believed to have a capacity of 25 MT each.

g. Primary Rolling Mills.

None.

h. Finishing Facilities.

Steel foundry and forge.

i. Intraplant Services.

The plant operates a 3,000-kw steam-electric power plant, fueled with peat and coal. 11/ The forge is equipped with 4 large presses and 4 smaller presses, 2 steam hammers, 6 pneumatic hammers, and adequate heating and annealing furnaces. 12/ A narrow-gauge railway services the plant throughout. 13/

j. Products and Production.

Steel products consist of 27,000 MT per year of railroad axles and other forgings, and 21,000 MT per year of steel castings. Total 1953 finished steel production is estimated at 48,000 MT. 14/ End products of this plant are railroad locomotives, diesel engines, and heavy machinery. 15/

k. Distribution.

All steel production at this plant is home consumed. 16/

l. Plant Efficiency.

The steel melting shop, the steel foundry, and the forge shop have been criticised for poor quality of production and for irregular deliveries. During 1949 there was a waste of 9,752 man-hours because forgings and castings were produced with too large an allowance of metal. This is equivalent to a loss of 5 percent of the time of workers involved. 17/

S-E-C-R-E-T

m. Administration.

This plant is administered by the Ministry of Transport and Heavy Machine Building. 18/

n. Personnel.

K. Yakovlev was Director in 1952. 19/

16. Kosaya Gora Iron Works (also known as Kosogorsk Metallurgical Works, imeni Dzerzhinskiy, 1/ and Tula Metallurgical Plant). 2/ (IR 7006980).

a. Location.

54°09' N - 37°33' E. This plant is located at Kosaya Gora, about 9 km south-southwest of Tula; Tula Oblast, Central Industrial Region, RSFSR, USSR. The Voronka River flows past the plant. 3/

b. History and Development.

The plant was established in 1896 as a very small enterprise, and does not appear to have been of much importance in the days of the Czars. 4/ During the decade preceding World War II, the three blast furnaces were modernized and were blown in during the years 1936, 1937, and 1939. 5/ When the Germans menaced Moscow, everything movable was evacuated to Magnitogorsk and Nizhniy Tagil. The evacuation was completed in September 1941, and everything not transferable was demolished. 6/ As soon as possible after the withdrawal of the Germans, the plant was rehabilitated and the three furnaces were rebuilt. The third and last furnace was finished in November 1944. 7/, and by 1946 prewar production had been exceeded by 50 percent. 8/

c. Raw Materials and Other Inputs.

There are many large pockets of 40-percent-Fe ore in the Tula and Lipetsk areas, and these ores are readily available to Kosaya Gora. 9/ Bogoroditsk and Kiveyevka are mentioned as local mines supplying ore to Kosaya Gora. 10/ Much of this ore is loaded at Dedilovo on the Moscow-Donbas Railroad and is consigned to Yasnaya Polyana for delivery to the Kosaya Gora plant. 11/ Manganese ore is delivered from Chiatura. 12/ Limestone comes from local sources. 13/

d. Coal and Coke.

In 1941 the blast furnaces were fueled (at least in part) with peat coke produced in the Red'kinskiy peat-coking plant at Red'kino on the

S-E-C-R-E-T

S-E-C-R-E-T

Nikolayev Railroad between the towns of Il'ino and Kalinin. The peat coke produced there was shipped by rail to Kosaya Gora. 14/ Coke is also received from the Donbas. Coal for steam and miscellaneous purposes is shipped by rail from mines in the vicinity of Shchekino, some 50 km south of the plant. 15/

e. Ironmaking Facilities.

There are three blast furnaces. The latest details (1939) of these furnaces are as follows:

Furnace	Date of Blow-in	Working Volume in cu m	Diameter in mm			
			Hearth	Bosh	Stockline	Big Bell
No. 1	1939	364	4,200	5,720	4,200	2,750
No. 2	1937	365	4,200	5,720	4,200	2,750
No. 3	1936	697	6,000	7,000	5,000	3,600 <u>16/</u>

After the retreat of the Germans all three of these furnaces were rebuilt and considerably enlarged; this rebuilding program was completed on 6 November 1944. 17/ The present working volume of these furnaces is unknown, but based on increase in the rate of production reported under b and pledge by workers to increase production from .77 to .87 MT per cu m, 18/ it is estimated that total capacity of the three furnaces in 1953 was 573,000 MT. 19/ As adjuncts to the blast furnaces, there are 15 blowers, 20/ 12 stoves, 3 dust catchers, a compressor plant, 21/ and a gas washer. 22/ Cast iron pigs 40 cm long, 20 cm wide, and 10 cm thick are produced. 23/

f. Steelmaking Facilities.

None.

g. Primary Rolling Mills.

None.

h. Finishing Facilities.

A cast iron pipe foundry is operated as an integral part of the plant. 24/

S-E-C-R-E-T

i. Intraplant Services.

A switch from the double-track, Soviet-gauge, Moscow-Korel Railroad enters the plant from the station at Yasnaya Polyana. 25/ A narrow-gauge railroad serves the various departments of the plant. 26/ Auxiliary facilities include an ore treatment plant and a lime processing plant, 27/ a forge shop with one drop forge and several compressed air hammers, and a machine shop equipped with all necessary facilities for repairs. 28/ Water is derived from a nearby artificial lake, where there is a pumping station capable of supplying 30,000 liters of water per minute. 29/ Power is produced by Tula Regional Heat and Electric Power Plant, with a capacity of 50,000 kw. 30/ A transformer station at the plant receives power through an overhead high-tension line and reduces the voltage by means of a transformer station at the plant. 31/ A cement plant is operated as an integral part of the works, utilizing granulated blast furnace slag as a raw material for cement manufacture. 32/

j. Products and Production.

The principal product of these furnaces is pig iron, 33/ although ferromanganese, spiegeleisen, and ferrosilicon also are produced. 34/ Total production of the 3 furnaces is reported to have been 220,400 MT in 1934, 35/ 382,000 in 1939, 36/ and is estimated to have been 573,000 MT in 1953. 37/ The foundry connected with the furnaces produces cast iron pipe and cast iron mine car wheels. 38/ 39/ Iron that is not consumed by the plant foundry may be foundry iron that is shipped to other foundries, or may be basic iron that is shipped to steelmaking furnaces.

k. Distribution.

Every 3 or 4 days about 20 carloads of pig iron are shipped away to destinations unknown. 40/

l. Plant Efficiency.

During recent years this plant has made a very enviable showing. For the first 5 months of 1944 the blast furnace shop was rated the best in the USSR. 41/ The plant won the Challenge Red Banner of the State Defense Committee in that year, and was allowed to retain it the following year. 42/ They overfulfilled the production program in May 1947, and won the Third Class Premium in that year. 43/ 44/ During the last half of 1948, workers pledged to reduce the planned coefficient from 1.30 to 1.15. 45/ On 20 December 1952 the plant completed the 1952 production plan. 46/ With characteristic Soviet emphasis on production achievement, however, the management neglected maintenance to such an extent that com-

S-E-C-R-E-T

complaints were registered about the rundown condition of the plant. These complaints appear to have been justified as recently as 1950, when the foundry roof fell in and timely repairs were not made. 47/

m. Administration.

Kosaya Gora Iron Works is under the Ministry of Metallurgy. 48/

n. Personnel.

In 1950 there were 600 workers, 50 percent of them convicts, operating on 3 shifts. 49/ In 1950 the Director was Sergeyev, and the Chief Engineer was Tseytlin. 50/

17. Kostroma Machine Building Plant (also known as Rabochi Metallist). 1/  
(IR 7004425)

a. Location.

57°40' N - 40°52' E, Kostroma, Kostroma Oblast, Central Industrial Region, RSFSR, USSR. The exact site is on the south bank of the Volga River, at the confluence of the Volga and Kostroma rivers. 2/

b. History and Development.

A plant at this site was established during the Czarist era and was enlarged and improved after 1918. 3/ The works suffered extensive damage by bombing during World War II. 4/

c. Raw Materials and Other Inputs.

No information available.

d. Coal and Coke.

No information available.

e. Ironmaking Facilities.

There is a gray iron foundry with four small cupolas. 5/

f. Steelmaking Facilities.

There is one VEO-type electric furnace of 3-MT capacity. This furnace was put in operation in 1934. The 1953 production of this furnace

S-E-C-R-E-T

is estimated at 3,000 MT. There is also 1 open-hearth furnace of 15 MT capacity, with an estimated 1953 production of 16,000 MT. 6/ 7/ Total 1953 estimated production is 19,000 MT.

g. Primary Rolling Mills.

None.

h. Finishing Facilities.

Steel foundry.

i. Intraplant Services.

No information available.

j. Products and Production.

The output of these furnaces is composed exclusively of steel castings. Production in 1953 is estimated at 10,000 MT. The end product is heavy machinery, principally excavators. 8/

k. Distribution.

Castings produced here are consumed entirely at the home plant. 9/

l. Plant Efficiency.

No information available.

m. Administration.

This operation is under the Ministry of Construction and Road Machine Building. 10/

n. Personnel.

No information available.

18. Kulebaki Steel Plant (also known as Kirov Steel Plant). (IR 7014104) 1/

a. Location.

55 25 N - 42 30

- 40 -

S-E-C-R-E-T

S-E-C-R-E-T

18. Kulebaki Steel Plant (also known as Kirov Steel Plant). 1/ (IR 7014104)

a. Location.

55°25' N - 42°30' E, northeast quarter of the town of Kulebaki, Gorki Oblast, Central Industrial Region, RSFSR, USSR. 2/ The plant is bordered on the north by the Murom-Kulebaki RR. 3/

b. History and Development.

The plant was founded in 1866, although present installations and equipment are relatively modern. 4/ Of the 6 existing open-hearth furnaces, 2 were built shortly after the end of World War I, 2 were built in 1934, 5/ and 2 were built during the course of World War II. 6/ The plant was not evacuated, nor was it seriously damaged during World War II. 7/

c. Raw Materials and Other Inputs.

In 1949 the principal inputs were pig iron and scrap, received by rail in amounts of 150,000 MT and 230,000 MT respectively from sources unknown. 8/ Other inputs are peat and wood which are procured as needed from local sources. 9/ Fuel oil is delivered by rail from Baku, a haul of about 1,800 km. 10/ Other inputs include ferromanganese, ferrochrome, ferrosilicon, and nickel. 11/ 12/

d. Coal and Coke.

Coal for heating purposes is received from an unknown source. Coal consumption amounts to 120 MT per day at the local power plant described under i, 13/ and 30 MT per day for miscellaneous purposes. 14/

e. Ironmaking Facilities.

There is a small iron foundry with one gas-fired cupola. 15/ This foundry produces gear for tanks and heavy machinery, and other castings. 16/

f. Steelmaking Facilities.

There are 6 open-hearth furnaces, each of 50 MT capacity. 17/ Four of these furnaces are moderately old and are fired by gas from seven wood-and peat-burning gas producers. The other two were constructed during World War II and are oil fired. 18/ The usual charge is 80 percent scrap and 20 percent pig iron. 19/ Each furnace is tapped every 8 hours, thus producing 3 heats per day per furnace, 20/ but pushing for production

S-E-C-R-E-T

results in these furnaces being down for relining and repairs for longer than normal periods. 21/ The open-hearth shop has 6 ladles, each of 50-MT capacity. 22/ Ingots are of three types: octagonal in section for conversion to wheel tires; rectangular in section for conversion to plates; and square in section for conversion to rails, shapes, and bars. 23/ Steel production in 1953 is estimated at 270,000 MT.

g. Primary Rolling Mills.

There are 3 soaking pits 24/ and 1 blooming and slabbing mill. 25/

h. Finishing Facilities.

Finishing equipment is described as follows: one 750-mm, 3-high, 3-stand rail and structural mill 26/; one 500-mm, 3-high, 3-stand bar mill; 1 Lauth-type, 3-high, single-stand 800/500/800-mm plate mill; and 1 railroad wheel tire mill. 27/ Finishing facilities include an armorplate treating department with 6 gas-fired heat treating furnaces. 28/ There is also a rail straightening press. 29/

i. Intraplant Services.

This steel works has its own powerplant, which is a homemade contrivance consisting of 2 locomotives providing steam to run 6 generators. 30/ This powerplant generates 12,000 kw. 31/ Water is pumped from underground sources and is filtered. 32/ The water is potable. 33/ Gas is generated at the battery of gas producers mentioned under f. The plant is serviced both by Soviet broad-gauge railroad 34/ and by a system of narrow-gauge trackage throughout the plant. 35/ There are 7 narrow-gauge steam locomotives. 36/ The plant manufactures its own firebrick at a kiln inside the plant, with a capacity of 40,000 chamotte bricks per day. 37/ There is a forge shop with 4 gas-fired heating furnaces and 4 steam hammers, plus miscellaneous equipment. 38/ There is a machine shop fully equipped with machine tools for plant maintenance work and also for machining forgings produced in the plant. 39/ 40/

j. Products and Production.

The principal products are railway car and locomotive tires, structural shapes, plates 41/ (including armorplate), 42/ bars (including rounds, squares, and flats), 43/ and axles. 44/ Armorplate is used for tanks and assault guns. It is generally of the following dimensions: 1.30 m wide, 2 m long, 10 to 80 mm thick, 45/ The forge shop produces various forgings, including rotating rings for tank turrets. 46/ The

S-E-C-R-E-T

foundry produces many miscellaneous castings. The tire shop produced 3,900 MT of tires during the 4th quarter of 1944. 47/ A historical record of production is as follows:

Thousand Metric Tons		
<u>Year</u>	<u>Steel</u>	<u>Finished Steel</u>
1934	139,000	124,400
1935	184,500	150,600 <u>48/</u>
1950	250,000	183,000 <u>49/</u>
1953 (est)	270,000	200,000

k. Distribution.

Important outlets for the products of Kulebaki are the State Automobile Plant No. 1 in Gorki, and Krasnoye Sormovo No. 112, a machine-building factory in Gorki. Each of these plants regularly receives large tonnages of finished steel from Kulebaki. 50/ Structural shapes and rails are shipped principally to Minsk, and most of the railroad wheels, axles, and locomotive forgings go to Odessa. 51/ Armorplate is consumed largely at a tank-building plant about 12 km south of Kulebaki, 52/ with some shipments going to Gorki and to Kirov. 53/

l. Plant Efficiency.

This plant during recent years has been conducting a campaign to recover rechargeable metal from its slag dump, and up to May 1950 had recovered 25,000 MT of such material. 54/ In response to stimulation for steel production, one open-hearth furnace produced 8 MT per day per sq m of hearth area as compared with the norm of 4 MT, and completed a melt in 6 hours 5 minutes as compared with 8 hours. 55/ Rejects at the foundry amounted to as much as 50 percent, which was attributed to a lack of skilled workers. 56/

m. Administration.

This plant is under the Ministry of Transport and Heavy Machine Building. 57/

n. Personnel.

There were 8,000 employees in 1950, 58/ including 2,000 women and an unspecified number of forced laborers. 59/ The work day is divided into three 8-hour shifts. 60/

S-E-C-R-E-T

19. Lipetsk Metallurgical Plant (also known as Svobodny Sokol Steel Plant). 1/  
(IR 7002264)

a. Location.

52°38' N - 39°38' E, Lipetsk, Voronezh Oblast, Central Industrial Region, RSFSR, USSR. The exact location is at Chugun Station, 0.7 km from the center of the city, on the Moscow-Donets Basin Railroad. 2/ 3/

b. History and Development.

The two blast furnaces at this site were first built in 1912, 4/ and have since been rebuilt and enlarged. 5/ The first reconstruction took place in 1929. 6/ At the outbreak of World War II, everything movable was evacuated to Tbilisi and Kutaisi. 7/ Such installations as were left were pounded severely by the Germans, but as soon as danger of bombing was past, rehabilitation and improvements began. 8/ Both furnaces were restored, and Furnace No. 2 was blown in on 29 January 1947. 9/

c. Raw Materials and Other Inputs.

These furnaces operate principally on brown limonite ores from nearby ore fields. 10/ The Syrenkie mine, some 200 km away, supplies most of this ore, which has an iron content of only 33 to 36 percent and is enriched with 55 to 70 percent iron ore from Krivoi Rog. 11/ Limestone comes from local quarries. 12/

d. Coal and Coke.

Coke is shipped from ovens in the Don Basin, about 350 km to the south. This coke contains 85 percent fixed carbon, 10 percent ash, and 1½ percent sulphur. There was a considerable loss in flue dust prior to 1943. Coke was used at a rate of 2,160 pounds per metric ton of iron. 13/ Coal from local mines is not suitable for coking, but is used for steam and miscellaneous purposes. 14/

e. Ironmaking Facilities.

The two blast furnaces at this plant are described as follows:

<u>Furnace</u>	<u>Working Volume in cu m</u>	<u>Diameter in mm</u>			
		<u>Hearth</u>	<u>Bosh</u>	<u>Stockline</u>	<u>Big Bell</u>
No. 1	537	4,420	6,400	5,000	3,470
No. 2	630	5,500	6,500	5,000	3,500

S-E-C-R-E-T

Although the rated capacity of these furnaces in 1942 was 480,000 MT, in 1948 they produced only 330,000 MT and in 1953 it is estimated that production was 397,000 MT based on a coefficient of 1. 16/ There is an iron foundry with 4 cupolas, having a total capacity of 120,000 MT of castings per year. 17/

f. Steelmaking Facilities.

None.

g. Primary Rolling Mills.

None.

h. Finishing Facilities.

None.

i. Intraplant Services.

Auxiliary units include a machine shop, a brick-making plant, an iron foundry, and a laboratory. 18/ Adjacent to the foundry is a cast iron pipe plant with two units capable of producing 112,000 MT of sewer pipe per year. 19/ This plant has its own source of power; a small operation fueled with local coal and generating 3,000 kw. 20/

j. Products and Production.

The sole product of these two blast furnaces is foundry iron. Production of pig iron was reported to have totaled 389,000 MT in 1942. 21/ Since that year the furnaces have been remodeled, and estimated production in 1953 is 397,000 MT. Secondary products include large cast iron sewer pipe, bombs, radiators, and parts for vehicles. 22/

k. Distribution.

An unknown but probably very substantial part of the pig iron produced by these blast furnaces is consumed by their iron foundry, with any surplus being shipped to other foundries in the area. 23/

l. Plant Efficiency.

Workers pledged to achieve a coefficient of 1.20 (plan was 1.49) during the last half of 1948. 24/

- 45 -

S-E-C-R-E-T

S-E-C-R-E-T

m. Administration.

This plant is under the Ministry of Metallurgy. 25/

n. Personnel.

There were 1,000 workers employed here in 1947.

20. Lyublino Railroad Car Building Plant (also known as the Mozherez RR Equipment Plant, and the Kaganovich RR Equipment Plant). 1/ (IR 7006445)

a. Location.

55°40' N - 37°44' E. This plant is located in the western part of Lyublino, a suburb of Moscow, in the Moscow Oblast, Central Industrial Region, RSFSR, USSR. It is on the line of the Moscow-Kursk Railroad, some 14 km southeast of the Kremlin. 2/

b. History and Development.

This plant was established during Czarist times for the purpose of building railroad cars and car parts. The oldest building in the area was built in 1907. Other buildings were added from time to time until 1930. 3/ Some of the equipment was evacuated to Kuybyshev in 1941 and was returned after the retreat of the Germans. 4/ War damage was insignificant and was quickly repaired. 5/

c. Raw Materials and Other Inputs.

40,000 MT of pig iron and 70,000 MT of scrap were consumed in 1943. 6/

d. Coal and Coke.

Coal in unknown amounts is received from the Donets area. 7/

e. Ironmaking Facilities.

There is an iron foundry with two oil-burning cupolas. 8/ Cast iron railroad car wheels are produced here. 9/

f. Steelmaking Facilities.

There is a steel foundry equipped with 3 open-hearth furnaces and 2 electric furnaces. 10/ Each of the open-hearth furnaces has a hearth

S-E-C-R-E-T

area of 16 sq m and an estimated capacity of 30 MT. 11/ The electric furnaces have a capacity of 3 MT each. 12/ 13/ The 1953 estimated production of steel ingots and steel for castings is 100,000 MT (94,000 MT open-hearth and 6,000 MT electric).

g. Primary Rolling Mills.

None.

h. Finishing Facilities.

Steel foundry and forge.

i. Intraplant Services.

Transportation is afforded by the Moscow-Kursk Railroad which runs a switch into the plant. 14/ A forge and machine shop are operated in connection with the foundry. A transformer station in the plant receives power from a power station in Moscow. 15/

j. Products and Production.

Products of the steel foundry are railroad car couplings, parts for air brakes, and various other car parts. Products of the forge are axles, which are forged from 25 x 25 x 160 cm ingots, and other car forgings. Steel for the forge is heated in an oil-burning furnace, and after forging is heat treated. 16/ Finished castings and forgings are estimated to amount to 65,000 MT per year.

k. Distribution.

Products of the steel foundry and forge are devoted exclusively to railroad cars and car parts produced at the home plant. 17/

l. Plant Efficiency.

During 1950 the open-hearth plant attained a record coefficient of 7½. 18/

m. Administration.

Administration is under the Ministry of Railroad Transport. 19/

n. Personnel.

Director in 1949 was Voroshilov. 20/

S-E-C-R-E-T

21. Moscow Automobile Building Plant (also known as Stalin, also Zis Motor Vehicle Plant). (IR 7009739)

a. Location.

55°45' N - 37°35' E, Moscow, Moscow Oblast, Central Industrial Region, RSFSR, USSR. The site of the plant is in the southern part of the city, in a bend of the Moscow River, about 8 km from the Kremlin. 1/

b. History and Development.

This operation dates back to Czarist times, and was extensively reconstructed after 1925. 2/

c. Raw Materials and Other Inputs.

Inputs include pig iron, scrap, and ferroalloys. 3/

d. Coal and Coke.

No information available.

e. Ironmaking Facilities.

There is an iron foundry with four cupolas producing gray and malleable iron. Iron production from these cupolas is also used as hot metal in the electric furnaces of the steel foundry. 4/

f. Steelmaking Facilities.

The steel foundry is equipped with two electric furnaces. These electric furnaces are 4 meters in diameter and have an estimated capacity of 12 MT each. The operation of this foundry is flexible, and depends on the nature of the products to be made. Sometimes the iron from the cupolas is turned directly into iron castings, and sometimes it is carried in hot metal transfer ladles to the electric furnaces. When operating on hot metal, these electric furnaces are tapped 8 times per day and have a total annual capacity of 60,000 MT of steel. 5/ 1953 production is estimated at 40,000 MT.

g. Primary Rolling Mills.

None.

S-E-C-R-E-T

h. Finishing Facilities.

Steel foundry.

i. Intraplant Services.

The foundry derives its power from the coal-fired thermal-electric powerplant of the automobile factory. 6/ Capacity is unknown. Spurs from the mainline railroad enter the plant. 7/ The foundry is supported with the usual auxiliary facilities, such as cleaning, sandblasting, hardening, grinding, and machining. 8/

j. Products and Production.

Products of this steel foundry are limited to steel castings for various automobile parts. 9/ Production in 1940 amounted to about 12,000 MT of steel castings. 10/ Estimated production in 1953 is 24,000 MT.

k. Distribution.

Most of the steel production of this foundry is consumed in automobile construction at the home plant, 11/ with any surplus presumably being diverted to other plants.

l. Plant Efficiency.

No information available.

m. Administration.

The plant is under the direction of the Ministry of Machine Building. 12/

n. Personnel.

The Director was Pisskop in 1949. 13/

22. Moscow Electrical Equipment Plant (also known as Dynamo). 1/ (IR 7007350)

a. Location.

55°45' N - 37°35' E, Moscow, Moscow Oblast, Central Industrial Region, RSFSR, USSR. It is in the southern part of the city, on the west bank of the Moscow River, about 1 km southeast of the Saratov freight yard. 2/

S-E-C-R-E-T

b. History and Development.

This enterprise was established in 1897 by a Belgian stock company, and later was taken over by Westinghouse. After the 1917 Revolution the plant was nationalized and expanded. A further drastic expansion took place in 1930, when the plant became so large that it was spoken of as the Giant Works. 3/ Everything movable was evacuated to Magnitogorsk in 1941 4/ and was returned in 1942. 5/

c. Raw Materials and Other Inputs.

In 1943 the foundry consumed 11,000 MT of steel and iron scrap. Electricity is derived from sources within the city of Moscow. 6/

d. Coal and Coke.

No information available.

e. Ironmaking Facilities.

There is an iron foundry, of character and capacity unknown. 7/

f. Steelmaking Facilities.

The steel foundry has 2 electric furnaces with a combined capacity of 13 MT. 8/ These furnaces have a rated annual capacity of 13,000 MT of steel. Estimated 1953 production is 13,000 MT.

g. Primary Rolling Mills.

None.

h. Finishing Facilities.

Steel foundry.

i. Intraplant Services.

No information available.

j. Products and Production.

Products of this foundry are steel castings in an estimated amount of 8,000 MT in 1953. 9/

S-E-C-R-E-T

k. Distribution.

The output of the steel foundry is consumed exclusively by the home plant 10/ in the manufacture of parts for such end products as electric locomotives, 11/ motors for street cars, 12/ cranes, and other heavy machinery. 13/

l. Plant Efficiency.

The iron foundry has developed a modified type of cast iron that can be substituted for steel in bearing housings and similar parts. 14/ Steel foundry practice here follows modern approved methods, including controlled hardness and the utilization of atmospheric pressure during crystallization. 15/ The foundry department at this plant saved over 1.5 million rubles out of the 1948 budget. 16/

m. Administration.

This plant is under the Ministry of Electric Power Stations and Electrical Industry. 17/

n. Personnel.

N.A. Orlovski was Director in 1945, N.I. Krestov in 1951. M.I. Sinaiski was Chief Engineer in 1951. 18/

23. Moscow Machine Building Plant (also known as Mashinstroitel). 1/  
(IR 7009157)

a. Location.

55°45' N - 37°35' E, Moscow, Moscow Oblast, Central Industrial Region, RSFSR, USSR. It is within the Stalin Rayon, which is in the eastern part of Moscow. 2/

b. History and Development.

Original buildings of this plant bear the date 1927, which is believed to be the year of origin of the plant. 3/ Facilities were evacuated to Siberia in 1941, and were reestablished after the retreat of the Germans from before Moscow. There is no evidence of war damage. 4/

c. Raw Materials and Other Inputs.

Pig iron and scrap are received from unknown sources. 5/

S-E-C-R-E-T

d. Coal and Coke.

Coal is received from unknown source.

e. Ironmaking Facilities.

There is an iron foundry, the equipment of which is unknown. Production amounts to 2,000 MT of iron castings per year. 6/

f. Steelmaking Facilities.

There is a steel foundry equipped with 1 electric furnace with 3 electrodes. 7/ This furnace has a capacity of 3 MT. 8/ It is tapped 3 times per day and produced 3,000 MT of steel in 1953. 9/

g. Primary Rolling Mills.

None.

h. Finishing Facilities.

Steel foundry.

i. Intraplant Services.

A Soviet-gauge railroad track enters the plant, 10/ but the plant also is served by a narrow-gauge railway. 11/ Electric power is derived from an unknown source in Moscow. 12/ Water comes from hydrants connected with the city water supply. 13/

j. Products and Production.

Products are castings, including dredger parts, railroad car buffer supports, 14/ gearwheels, and machinery bases. 15/ Estimated production of finished steel castings in 1953 is 2,000 MT.

k. Distribution.

No information available.

l. Plant Efficiency.

No information available.

S-E-C-R-E-T

S-E-C-R-E-T

m. Administration.

This plant is under the Ministry of Transportation. 16/

n. Personnel.

No information available.

24. Moscow Shell Foundry (also known as Losinoostrovskaja Plant, 1/ and Babushkin Machine Factory. 2/) (IR 7007352)

a. Location.

55°45' N - 37°35' E, Moscow, between the localities known as Losinoostrovskaja 3/ and Babushkin; 4/ Moscow Oblast, Central Industrial Region, RSFSR, USSR.

b. History and Development.

No information available.

c. Raw Materials and Other Inputs.

Inputs include scrap iron and steel in unknown amounts. Electric power is derived from local sources. 5/

d. Coal and Coke.

No information available.

e. Ironmaking Facilities.

None.

f. Steelmaking Facilities.

There are 8 electric furnaces, each of 3-MT capacity. 6/ The total 1953 steel production is estimated at 24,000 MT.

g. Primary Rolling Mills.

None.

h. Finishing Facilities.

There is a steel foundry, but details of equipment and operation are unknown. 7/

S-E-C-R-E-T

i. Intraplant Services.

No information available.

j. Products and Production.

This foundry produces steel castings only, principally in the form of ammunition for artillery. 8/ 1953 production is estimated at 14,000 MT.

k. Distribution.

The entire steel production of this foundry is consumed by the home plant.

l. Plant Efficiency.

No information available.

m. Administration.

No information available.

n. Personnel.

No information available.

25. Moscow Tube Mill (also known as Krasnaya Pipe Plant). (IR 7006446)

a. Location

55°45' N - 37°35' E, Moskva Fili, Kiev Rayon of Moscow, Moscow Oblast, Central Industrial Region, RSFSR, USSR. 1/

b. History and Development.

The original plant consisted of a butt-weld tube mill, which was put into operation in 1932. 2/ Facilities for cold rolling, electric welding, and annealing were installed during the ensuing 2 or 3 years. At that time the plant was known as Tube Rolling and Tube Electric Welding Works. In subsequent years the plant was expanded and modified from time to time, and the Kramatorsk Engineering Works was commissioned to build mechanized equipment of a new design that was scheduled to be installed in 1951. At that time the old coal-burning heating furnaces were to have been replaced with new regenerative furnaces burning producer gas. 3/

S-E-C-R-E-T

c. Raw Materials and Other Inputs.

The raw material is hot-rolled strip in coils, received from Magnitogorsk Metallurgical Combine imeni Stalin. 4/ This represents a rail haul of approximately 2,000 km. Other inputs include sulphuric acid, electric current, and water. 5/

d. Coal and Coke.

Coal for the gas producers and for miscellaneous purposes is the noncoking brown coal from the coalfields in the general Moscow area. 6/

e. Ironmaking Facilities.

None.

f. Steelmaking Facilities.

None.

g. Primary Rolling Mills.

None.

h. Finishing Facilities.

Some of the hot-rolled strip received from Magnitogorsk is cold-reduced to thicknesses of 0.6 mm to 6 mm, in widths of 38 mm to 198 mm. This cold-rolled strip is then cold-formed into tubes, and electrically welded in two machines of type ASHT-60 manufactured by Leningrad Electric Works. Tubes are normalized and finally coated. Some of the hot-rolled strip is heated, drawn through a welding bell, formed into tubes, and butt welded. 7/

i. Intraplant Services.

The plant is served by a switch from the West railroad (Soviet gauge). 8/ There is a boiler house, and also an electric power substation. 9/ In addition, there is a consumer goods plant manufacturing tubular furniture, bicycle frames, and the like. 10/

j. Products and Production.

The principal products are tubes for machinery and construction industries, boiler tubes, gas pipe, and water pipe. 11/ Except for the smallest sizes, tubes are produced with threaded ends and a screwed-on sleeve

S-E-C-R-E-T

at one end. Tubes are produced in both carbon and alloy grades. 12/ In 1950, production was 26,000 MT of tubes. 13/ Estimated production in 1953 is 26,000 MT.

k. Distribution.

Products are distributed to aircraft builders and to bicycle, machinery, tractor, boiler, transformer, metal furniture, automobile, and agricultural implement manufacturers. 14/ Some specific customers are Moscow Motor Vehicle Factory imeni Stalin, Gorki Motor Vehicle Factory imeni Molotov, Moscow Transformer Factory, bicycle factories at Riga and Penza, boiler factories at Taganrog and Podolsk, miscellaneous customers in Leningrad, Kiev, Kharkov, Novosibirsk, and the local consumer goods plant. Gas and water pipes have important outlets in Moscow in the Saratov-Moscow gas system and the Moscow Gasapparat Factory. 15/

l. Plant Efficiency.

There has been a consistently steady increase in production at this plant. 16/

m. Administration.

Originally Moscow Tube Works belonged to the State Trust for Iron and Steel Pipe, under the Chief Administration of the Metallurgical Industry. 17/ In 1950, control of the plant was transferred to Glavtrobostal and the Ministry of Ferrous Metallurgy. 18/

n. Personnel.

The plant employs 1,800 people, operating in 3 shifts. The Director is Kolyada. The Chief Engineer is Konyushenko. 19/

26. Murom Forge Building Plant (also known as French Communist Party Steel Plant). 1/ (IR 7002611)

a. Location.

55°36' N - 42°02' E, Murom, Vladimir Oblast, Central Industrial Region, RSFSR, USSR. 2/

b. History and Development.

This operation was established in 1887 3/ for the purpose of building heavy machinery, especially forges and forge equipment. 4/ In July 1941

S-E-C-R-E-T

S-E-C-R-E-T

production was converted to tank bodies and tank turrets. 5/ Since the end of the war, production of forges has been resumed. 6/

c. Raw Materials and Other Inputs.

No information available.

d. Coal and Coke.

No information available.

e. Ironmaking Facilities.

There is an iron foundry with 2 cupolas, producing 9,000 MT of iron castings per year. 7/

f. Steelmaking Facilities.

There is a steel foundry with 1 electric furnace of 5-MT capacity. Estimate of production in 1953 is 5,000 MT. 8/

g. Primary Rolling Mills.

None.

h. Finishing Facilities.

Steel foundry.

i. Intraplant Services.

Power is derived from Balakhna. 9/

j. Products and Production.

The steel foundry produces parts for forges and forging equipment. 10/ During World War II, the foundry was devoted to production of steel castings for tanks. 11/ The output of finished steel products is estimated at 3,000 MT in 1953.

k. Distribution.

The entire product of the foundry is consumed by the home plant. 12/

S-E-C-R-E-T

l. Plant Efficiency.

No information available.

m. Administration.

Administration of this plant is under the Ministry of Transport and Heavy Machine Building. 12/

n. Personnel.

No information available.

27. Murom Industrial Locomotive Plant (also known as Dzerzhinskiy RR Repair Shop). 1/ (IR 7002621)

a. Location.

55°36' N - 42°02' E. This factory is in the southeastern part of Murom, Vladimir Oblast, Central Industrial Region, RSFSR, USSR. 2/

b. History and Development.

Little is known about the early history of this plant except that it was built prior to World War II. It was established for the purpose of producing industrial locomotives, but at the beginning of World War II it was converted to the production of tank hulls and turrets. After the end of the war, the plant was reconverted to production of industrial locomotives. 3/

c. Raw Materials and Other Inputs.

No information available.

d. Coal and Coke.

No information available.

e. Ironmaking Facilities.

None.

f. Steelmaking Facilities.

The plant operates a steel foundry, with 1 electric furnace of 5 MT capacity. 1953 production of steel for castings is 5,000 MT. 4/

S-E-C-R-E-T

S-E-C-R-E-T

g. Primary Rolling Mills.

None.

h. Finishing Facilities.

Steel foundry.

i. Intraplant Services.

No information available.

j. Products and Production.

Products of this foundry are castings for the end products of the plant, which are industrial locomotives and similar equipment. 5/ 1953 production of finished steel is estimated at 3,000 MT.

k. Distribution.

The entire output of this foundry is consumed by the home plant. 6/

l. Plant Efficiency.

No information available.

m. Administration.

This plant is administered by the Ministry of Transport and Heavy Machine Building. 7/

28. Mytishchi Railroad Car Factory, No. 40. 1/ (IR 7002822)

a. Location.

55°54' N - 37°44' E, Mytishchi, Moscow Oblast, Central Industrial Region, RSFSR, USSR. The factory is on the east side of the Moscow-Yaroslavl' Railroad, just south of the Mytishchi railroad station. 2/

b. History and Development.

This plant was founded in 1897 for the purpose of manufacturing railroad rolling stock. 3/ Expansion and modernization took place from time to time prior to World War II. Facilities were evacuated to Katav-Ivanovsk in October 1941, and returned in 1942. Armament and munitions were produced during the war. 4/

S-E-C-R-E-T

S-E-C-R-E-T

c. Raw Materials and Other Inputs.

In 1941 3,000 MT of pig iron from Tula and 3,000 MT of scrap from local sources were consumed. 5/

d. Coal and Coke.

No information available.

e. Ironmaking Facilities.

None.

f. Steelmaking Facilities.

There are 2 cupolas and 2 Bessemer converters with a total conversion capacity of 3.5 MT. Liquid metal for the converters is provided by the cupolas. 6/ The pre-World War II annual steel production of these converters is reported as 5,000 MT. Estimated maximum capacity is 28,000 MT, and estimated 1953 production is 14,000 MT.

g. Primary Rolling Mills.

None.

h. Finishing Facilities.

Steel foundry.

i. Intraplant Services.

The plant is served by a spur from the Moscow-Yaroslavl' Railroad. 7/

j. Products and Production.

This foundry was built in order to furnish steel castings for the railroad rolling stock manufactured at Mytishchi. During World War II the foundry was devoted to production of steel for munitions of war, but after the retreat of the Germans reconversion was promptly made to castings and forgings for railroad cars. 8/ Production of finished steel in 1953 is estimated at 8,000 MT.

k. Distribution.

All of the steel produced in these furnaces is consumed by the home plant. 9/

S-E-C-R-E-T

S-E-C-R-E-T

1. Plant Efficiency.

No information available.

m. Administration.

This plant is under the Administration of the Ministry of Transport and Heavy Machine Building. 10/

n. Personnel.

No information available.

29. Novo-Lipetsk Metallurgical Plant (also known as Vareyisk Steel Plant).  
(IR 7011101) 1/

a. Location.

52°38' N - 39°38' E, near Lipetsk, Voronezh Oblast, Central Industrial Region, RSFSR, USSR. The location is at Kazinka railroad station, east of Lipetsk on the Moscow-Donets Basin Railroad. 2/ 3/ 4/

b. History and Development.

Construction was begun in 1931 5/ and blast furnace No. 1 was blown in on 6 November 1934. Blast furnace No. 2 was blown in on 4 November 1935. 6/

c. Raw Materials and Other Inputs.

These furnaces operate largely on the local iron ores, which are distinguished for their low phosphorus content but contain only about 33 percent to 35 percent iron. The low phosphorus is highly desirable for the production of foundry iron, but because of their low iron content the local ores are blended with richer ores from Krivoi Rog. 7/

d. Coal and Coke.

Coke for these furnaces is shipped from the Donbas because the local coals are not suitable for coking. 8/ Local brown coal from the coalfields around Moscow is mixed with other coal and used for steam and miscellaneous purposes. 9/ 10/

S-E-C-R-E-T

S-E-C-R-E-Te. Ironmaking Facilities.

There are two blast furnaces, described just before the outbreak of World War II 11/ as follows:

<u>Furnace</u>	<u>Date of Blow-in</u>	<u>Working Volume in cu m</u>	<u>Diameter in mm</u>			
			<u>Hearth</u>	<u>Bosh</u>	<u>Stockline</u>	<u>Big Bell</u>
No. 1	1939	930	7,000	7,850	5,600	3,960
No. 2	1940	930	7,000	7,850	5,600	3,960

In 1935 the rated capacity of each furnace was 250,000 MT. 12/ In 1942 the rated capacity of each furnace was 300,000 MT. 13/ Estimated production of pig iron in 1953 14/ is as follows:

<u>Thousand Metric Tons</u>				
<u>Number of Furnaces</u>	<u>Volume cu m</u>	<u>Coefficient</u>	<u>Number Working Days</u>	<u>Production Production</u>
2	1860	0.94	340	672

f. Steelmaking Facilities.

None.

g. Primary Mills.

None.

h. Finishing Facilities.

None.

i. Intraplant Services.

There is a casting machine for casting grates and other simple cast iron objects. 15/ Power is derived through a high-voltage transmission line from the Voronezh State Regional Powerplant which was put into operation in 1934 with one turbogenerator of the condensing type generating 24,000 kw. 16/ An additional unit generating 25,000 kw was installed subsequently affording a total of 49,000 kw. 17/

S-E-C-R-E-T

S-E-C-R-E-T

j. Products and Production.

These furnaces produce only foundry iron. The plant produced 200,900 MT in 1934; 247,800 MT in 1935; 500,000 in 1936; and 600,000 MT in 1942. 18/ 19/ 20/ Estimated 1953 production is 672,000 MT.

k. Distribution.

An unknown tonnage is consumed at the plant casting operation. The rest of the output is distributed to foundries in the general area.

l. Plant Efficiency.

No information available.

m. Administration.

This plant is under the Ministry of Metallurgy. 21/

n. Personnel.

There were 3,000 employees in 1941. 22/

30. Novokramatorsk Machine Building Plant (also known as Stalin Machine Building Factory - NKMZ). (IR 9003836)

a. Location.

55°47' N - 38°28' E. This plant is immediately adjacent to the Elektrostal Metallurgical Plant in Elektrostal, Moscow Oblast, Central Industrial Region, RSFSR, USSR. 1/

b. History and Development.

Shortly after the outbreak of World War II, a factory for the production of airplane engine parts was evacuated from Elektrostal and was replaced by certain facilities and equipment of the Kramatorsk Heavy Machinery Plant at Kramatorsk, which was then threatened by the Germans. The new installation was thereafter identified as Novokramatorsk Machine Building Plant. It acquired certain equipment from its next-door neighbor, Elektrostal Metallurgical Plant, and operated continuously through the war and subsequently. 2/

c. Raw Materials and Other Inputs.

Pig iron, firebrick, and alloying metals are received from unknown sources. Fuel oil is delivered by tank car. 3/ Scrap is derived from home sources, supplemented by deliveries from nearby industrial plants. 4/

S-E-C-R-E-T

S-E-C-R-E-T

d. Coal and Coke.

Solid fuels used are commercial coke, brown coal from the Moscow area, and peat from nearby sources. 5/

e. Ironmaking Facilities.

There is an iron foundry with three small cupolas. 6/

f. Steelmaking Facilities.

There are 2 electric furnaces, each of 10 tons capacity; 1 electric furnace of 3 tons capacity; 1 electric furnace of 30 tons capacity; and 1 oil-fired open-hearth furnace 7/ of 35 tons capacity. 8/ The total production of ingots and steel for castings is estimated to be 76,000 MT in 1953 (34,000 open-hearth and 42,000 electric).

g. Primary Rolling Mills.

None.

h. Finishing Facilities.

Steel foundry.

i. Intraplant Services.

Auxiliary facilities include a forge and press shop, with a hammer section and a press section. The press section is equipped with a Schloemann press of 1,500 tons 9/, together with presses of 800 and 600 tons as well as some lighter presses. Associated with the foundry are a pattern shop and a machine shop. 10/ The plant is served throughout by a Soviet-gauge railroad. 11/ Water is derived from the municipal water supply. 12/ Electric current comes from Noginsk 13/ and is transformed to the required voltage in a central transformer station and distributed as needed. 14/

j. Products and Production.

The 1953 output of finished steel castings and forgings is estimated at 46,000 MT. This steel foundry and forge turn out articles that are required for fabrication and assembly into such end items as bridges, cranes, heavy machinery, and rolling mill components. 15/

k. Distribution.

The entire output of steel from these furnaces is consumed by the fabricating and assembly departments of the Novokramatorsk plant. 16/

S-E-C-R-E-T

1. Plant Efficiency.

The casting and forge pressing shops lost the Red Banner in 1950 because of substandard quality of output and delays in production. 17/ In 1948, morale of workers was low, due to unreasonable pressure from management to exceed production norms. 18/

m. Administration.

This plant is under the Ministry of Transport and Machine Building. 19/

n. Personnel.

Throughout the war and until 1948, the Director of the plant was Yefim Stepanovitch Novoselov, who had been Director of the Central Research Institute of Heavy Machine Building. As of 1953, the Director was Kondratskiy, the Deputy Director was Chvirov, and the Chief Metallurgist was Odintsov. 20/ The number of employees is stated to be 3,500, 21/ but this includes all employees of the plant. It is estimated that about 1,000 employees are involved in the iron-and steel-making and finishing processes.

31. Omutninsk Metallurgical Works. (IR 7010973)

a. Location.

58°40' N - 52°12' E. The plant is situated south of the railroad station at Stalinaya, which is on the Molotov Railroad line. 1/ Stalinaya is a suburb of Omutninsk, Kirov Oblast, Central Industrial Region, RSFSR, USSR. 2/

b. History and Development.

This plant dates back into antiquity, in terms of modern industry, and celebrated its 175th birthday in 1948. 3/ Prior to 1917, the operation was known as Iron and Steel Works of Omutninsk. 4/ At one time it boasted a blast furnace, which was removed in 1929. 5/ Of recent years nearly all of the plant has been rebuilt, and new open-hearth furnaces and other facilities have been installed. 6/ The third, newest, and largest open-hearth furnace poured its first steel in 1946. 7/

c. Raw Materials and Other Inputs.

In 1945 and 1946 the pig iron used for steelmaking at Omutninsk came from blast furnaces in the Urals, representing a rail haul of some 600 km. 8/ Scrap is derived largely from local sources, and also from

S-E-C-R-E-T

S-E-C-R-E-T

Sovzone Germany, from the Molotov plant at Gorki, and elsewhere. 9/ Water for industrial purposes is supplied by the city water works. 10/ Electric current is produced locally. 11/ Wood for fuel is procured in large quantities from nearby forests. 12/ Iron ore for use in the open hearths comes from mines in the Urals, about 700 km away. 13/

d. Coal and Coke.

Coal comes from the Donets Basin, but in relatively small quantities inasmuch as wood is the principal fuel. 14/

e. Ironmaking Facilities.

None.

f. Steelmaking Facilities.

There are three open-hearth furnaces. Two of them have a hearth area of 33 sq m each and a capacity of 35 MT each. Their combined production is estimated at 68,000 MT per year. 15/ The third furnace has a capacity of 70 MT and the annual production is estimated at 57,000 MT. 16/ Estimated total production in 1953 is 125,000 MT. There is a small puddling furnace, reputed to be the only one in the USSR. Production of wrought iron in this furnace is unknown, but probably is insignificant. 17/

g. Primary Rolling Mills.

There is no mill at this plant designated as a blooming or billet mill, but ingots probably are broken down into billets for the bar mills and slabs for the sheet mill by the unit known as a heavy bar mill. This mill is 550-mm, 3-high, 2-stand. 18/

h. Finishing Facilities.

The breakdown mill mentioned under g, above, probably also serves as a finishing mill for the production of heavy bars and structural shapes. Other finishing mills are listed as follows: one 3-high, 3-stand 450-mm medium bar mill; one 2-high, 7-stand 280-mm small bar mill; and one 2-high, single-stand 550-mm sheet mill. 19/

i. Intraplant Services.

Plant facilities include a machine shop, a refractory brick producing shop, 20/ and an oxygen producing unit. 21/ There is a narrow-gauge track system throughout the plant. 22/ There is a hydroelectric plant in the steel works area, which supplies power not only to the steel

S-E-C-R-E-T

works but also to the town of Omutninsk. 23/ This electric plant is operated by the overflow from a nearby lake. 34/ Water for the steel works comes from the Omutninsk water system. 25/

j. Products and Production.

The products of this plant are sheets 26/, bars, bands, bar shapes, and light structural sections. 27/ Certain special qualities, such as spring steel, tool steel, 28/ and wrought iron are produced. 29/ Production of rolled steel in 1953 is estimated at 87,000 MT per year.

k. Distribution.

Shipment of 1,000 MT of semifinished steel is made each month to Kirov Plant No. 38 at Kirov, for further conversion. 30/ The balance of Omutninsk production is distributed among various manufacturers in the Kirov and Gorki Oblasts. 31/

l. Plant Efficiency.

The works fulfilled both steelmaking and rolling production plans ahead of time for the first 6 months of 1952. 32/

m. Administration.

This plant is under the Ministry of Metallurgy. 33/

n. Personnel.

The Director's name is Oleynov. 34/ The plant operates on 3 shifts, with 2,000 workers, 60 percent of whom are women. 35/

32. Orekhova-Zuyevo Foundry (also known as Baryshnikov Foundry). 1/  
(IR 7001983)

a. Location.

55°49' N - 38°59' E, town of Orekhova-Zuyevo, Moscow Oblast, Central Industrial Region, RSFSR, USSR. The Zuyevo River is 500 m north of the plant, which is skirted on the south by the Gorki-Moscow Railroad. 2/

b. History and Development.

A plant is reported to have been established here in 1918, 3/ and steel production began here at least as long ago as 1933. 4/ The primary function of this plant is the manufacture of light machinery.

S-E-C-R-E-T

S-E-C-R-E-T

c. Raw Materials and Other Inputs.

Raw materials consumed by this foundry each year include 3,000 MT of pig iron received from Tula, and 3,000 MT of iron and steel scrap received from Tula and other sources, including the home plant. 5/

d. Coal and Coke.

No information available.

e. Ironmaking Facilities.

The plant operates two small cupolas for the production of iron for castings and for use in the Bessemer converter. 6/

f. Steelmaking Facilities.

There is a Bessemer converter with a capacity of 1 MT, and an electric furnace with an estimated capacity of 3 MT. 7/ It is estimated that these facilities produced 10,000 MT of steel in 1953 (4,000 MT electric and 6,000 MT Bessemer).

g. Primary Rolling Mills.

None.

h. Finishing Facilities.

Steel foundry.

i. Intraplant Services.

No information available.

j. Products and Production.

Products consist of steel castings for gears, clutches, and other machinery parts. 9/ The estimated production of finished steel castings is 4,000 MT.

k. Distribution.

Output of the steel foundry is entirely consumed by the home plant, which is devoted to the production of light machinery. 10/

l. Plant Efficiency.

No information available.

S-E-C-R-E-T

m. Administration.

Administration of this plant is under the All-Union Trust for Production of Machines for Light Industry, which is under People's Commissariat of Light Industry and Food Industry of the USSR. 11/

n. Personnel.

No information available.

33. Peskovko Iron Works. (IR 7010972)

a. Location.

59°03' N - 52°22' E, Peskovko, Kirov Oblast, Central Industrial Region, RSFSR, USSR. 1/

b. History and Development.

This is one of the very old industrial establishments of the USSR, having been founded in 1771. Prior to 1917 the plant belonged to the Omutninsk Mining Firm, N.P. Pastukhov, and was known as Iron Works Peskovski. 2/ The present blast furnace was put into operation in 1931. 3/

c. Raw Materials and Other Inputs.

Iron ore comes from the Kirov Basin. 4/

d. Coal and Coke.

No coke is produced or consumed here. The operation consumes coal only in insignificant amounts for miscellaneous purposes. The blast furnace operates on charcoal, which is produced locally from the hardwood forests surrounding the area. 5/

e. Ironmaking Facilities.

There is one charcoal-burning blast furnace with a working volume of 71 cu m. 6/ The estimated 1953 production of pig iron is 20,000 MT.

f. Steelmaking Facilities.

None.

g. Primary Rolling Mills.

None.

S-E-C-R-E-T

h. Finishing Facilities.

None.

i. Intraplant Services.

A spur railroad line connects the furnace area with the main Kirov-Molotov Railroad. 7/ Water transportation also is available via the Vyatka River. 8/ The plant has its own electric power station, the capacity of which is unknown. 9/ There is a gray iron foundry operated in connection with the blast furnace. 10/

j. Products and Production.

This furnace produced 20,000 MT of foundry iron in 1953. 11/ 12/

k. Distribution.

Output goes to the local foundry and possibly to other foundries in the general area. 13/

l. Plant Efficiency.

No information available.

m. Administration.

This plant is operated under the Republic Trust for Omutnostal, which is an authorized agent of the People's Commissariat of Heavy Industry of the Council of People's Commissars of the RSFSR. 14/

n. Personnel.

No information available.

34. Ramenskoye Metal Products Plant (also known as Metiz Nail and Wire Factory). 1/ (IR 7002517)

a. Location.

55°34' N - 38°14' E, Ramenskoye, in the eastern environs of Moscow, 2/ Moscow Oblast, Central Industrial Region, RSFSR, USSR.

b. History and Development.

There is little information about this plant prior to World War II. The earliest available reports show that the plant had a finished steel capacity of 42,200 MT in 1940, with a planned capacity of 96,000 MT in 1942. 3/

S-E-C-R-E-T

c. Raw Materials and Other Inputs.

During World War II pig iron and scrap were received in amounts of 12,000 MT and 20,000 MT per year respectively. 4/

d. Coal and Coke.

No information available.

e. Ironmaking Facilities.

None,

f. Steelmaking Facilities.

There is 1 open-hearth furnace of 6.5 sq m in hearth area and 15 MT estimated capacity. 5/ The estimated production for 1953 is 15,000 MT.

g. Primary Rolling Mills.

Presumably one of the trains of rolls mentioned under h serves as a breakdown mill.

h. Finishing Facilities.

There are three trains of rolls that produce wire rods. These rods go to the adjacent wire drawing shop which is equipped with 1 heavy wire drawing bench, 2 medium wire drawing benches, 2 fine wire drawing benches, 1 scraper drawing bench, and 10 multiple drawing machines. Finishing facilities include an annealing and processing shop, and a wire nail installation with 94 nail-making machines. 6/

i. Intraplant Services.

There are two gas producers and a boiler house installation. 7/

j. Products and Production.

This shop produces wire and wire products, including cables, telegraph wire, and nails. 8/ The estimated 1953 output of these products is 43,000 MT (see Gaps in Intelligence).

k. Distribution.

No information available.

l. Plant Efficiency.

No information available.

S-E-C-R-E-T

m. Administration.

No information available.

n. Personnel.

No information available.

35. Shcherbakov Printing Machine Factory No. 808. 1/ (IR 7024733)

a. Location.

58°03' N - 38°50' E, Shcherbakov (formerly known as Rybinsk), Yaroslavl Oblast, Central Industrial Region, RSFSR, USSR. 2/

b. History and Development.

The early history of the printing machine factory is unknown, but the steel foundry built as a department of the plant was started in 1942 3/ and was in operation in 1943. 4/

c. Raw Materials and Other Inputs.

The steel foundry received 12,000 MT of pig iron and 20,000 MT of scrap in 1943. 5/

d. Coal and Coke.

No information available.

e. Ironmaking Facilities.

The steel foundry operates 2 open-hearth furnaces, with a combined hearth area of 13 sq m. 6/ The capacity of these furnaces is estimated at 12 MT each. 7/ The 1953 production of poured steel is estimated to be 30,000 MT.

g. Primary Rolling Mills.

None.

h. Finishing Facilities.

Steel foundry.

i. Intraplant Services.

No information available.

S-E-C-R-E-T

j. Products and Production.

Products are steel castings for printing presses and for armament. 8/  
The estimated total production of finished steel castings in 1953 amounted to 17,000 MT.

k. Distribution.

Output is consumed exclusively at the home plant. 9/

l. Plant Efficiency.

No information available.

m. Administration.

This plant is under the Ministry of Machine Building. 10/

n. Personnel.

No information available.

36. Sickle and Hammer (Serp i Molot), (also known as Moscow Metallurgical Plant). (IR 7014092) 1/

a. Location.

55° 45' N - 37° 35' E, Moscow, Moscow Oblast, Central Industrial Region, RSFSR, USSR. 2/ The plant is located 4 km east-southeast from the Kremlin, and 1 km south of the Kursk railroad station 3/ on the Gorkovskii Railroad. 4/

b. History and Development.

The plant now known as Sickle and Hammer appears to have been established in Moscow in 1883 as a primitive wire and nail shop. Two years later this operation took the name "Association of the Metal Plant in Moscow," and during the following decade installed two small open-hearth furnaces, a couple of bar mills, a cable shop, and some auxiliary shops. At that time, not only was this the only steel plant in Moscow, but it was the only steel plant in the entire central part of Russia. 5/ In Czarist days the plant was operated by Guzhon and Company, 6/ which, during the years prior to the 1917 Revolution, built the following facilities: 4 open-hearth furnaces with 40-MT capacity each, 1 open-hearth furnace with 15 MT capacity, 1 open-hearth furnace with 10 MT capacity, 1 open-hearth

S-E-C-R-E-T

S-E-C-R-E-T

furnace with 3-MT capacity, one 600-mm 3-high blooming mill, 1 medium bar mill, 1 small bar and wire rod mill, a steel casting shop, and a sheet mill with 5 old-fashioned stands of rolls. 7/ 8/ By 1921 the economic and industrial upheaval caused by World War I, the Revolution, and military intervention had simmered down, and the plant began a program of modernization and expansion. All of the open-hearth furnaces were redesigned and enlarged. The shop equipment was supplemented by installation of improved charging machines and overhead cranes. Manual operations were mechanized. The 600-mm blooming mill was converted to a 700-mm mill and its furnaces were rebuilt. Improvements were made to the various finishing mills; new annealing, pickling, and other processing facilities were installed. 9/ Sheet rolling capacity was doubled and 2 lines of 4-high cold rolling sheet mills were added. 10/ After these modern physical features had been introduced, attention was concentrated on quality, and the plant began to turn out the stainless, alloy, and other special types and grades of steel (including bimetallic products) for which it has become famous. At the beginning of World War II part of the plant equipment was evacuated to Omutninsk. 11/ Installations left in Moscow do not appear to have been damaged severely by bombing, but nevertheless operations during the early years of the war were almost at a standstill, because workers either were in uniform at the front or were engaged in throwing up defense works around the city. 12/ After the Germans had retired from the immediate vicinity of Moscow, operations were reestablished, and by the middle of 1942 Sickle and Hammer was producing steel for munitions for the front. Since the armistice, this plant has resumed the program interrupted by war and today is the 23d 13/ largest steel producer in the USSR -- still emphasizing quality, and apparently with very good success. 14/

c. Raw Materials and Other Inputs.

Materials consumed by this plant include pig iron, scrap, ferroalloys, iron ore, aluminum, limestone, and sulphuric acid. 15/ 16/

d. Coal and Coke.

Coal for steam and miscellaneous purposes is brown coal from fields in the general Moscow area. 17/

e. Ironmaking Facilities.

None.

f. Steelmaking Facilities.

There are two open-hearth shops. Shop No. 1 contains four 70-ton oil-fired open-hearth furnaces; plant No. 2 contains three 70-ton oil-fired open-hearth furnaces and two 10-ton electric furnaces. 18/ The open-

S-E-C-R-E-T

hearth melting practice at this plant is 65 percent scrap and 35 percent pig iron. 19/ The plant emphasizes up-to-date operating practice and has introduced such features as the use of oxygen to increase temperature and reduce melting time, automatic valve and damper control, and various improvements in mechanization. 20/ The operating coefficient is 7.15 but this often has been greatly exceeded. 21/ A phenomenal coefficient of 19 has been reported. 22/ 1953 steel capacity is rated at 340,000 MT (320,000 MT open-hearth and 20,000 MT electric). Shop No. 1 casts its steel in ingots about 50 cm by 50 cm by 2 m. All ingots are hot topped. 23/ Shop No. 2 produces steel castings including such items as engine and tank parts, railroad crossovers, parts for escalators, and parts for electric power stations. 24/ A record of open-hearth and electric steel production at Sickie and Hammer is as follows:

<u>Thousand Metric Tons</u>	
1916	32
1928	104
1929	124 <u>25/</u>
1934	157
1935	190 <u>26/</u>
1936	254
1937	273
1938	285 <u>27/ 28/</u>
1948	260
1952	331
1953 (est)	340

g. Primary Rolling Mills.

There is a 750-mm blooming mill which had 4 soaking pits until 1946, when improved and increased heating facilities were added. 29/ In 1948, the norm for rolling ingots was 360 ingots per 8-hour shift. This norm was frequently exceeded, and sometimes as many as 470 ingots per shift were rolled. 30/ This mill was converted from an old 600-mm mill in 1946 and improvements were installed to handle heavier ingots and increase production. 31/ Billets produced are principally 15 by 15 cm and 10 by 10 cm. 32/

h. Finishing Facilities.

Finishing facilities are as follows: one 700-mm, 3-stand, 3-high heavy bar mill; 1 medium bar mill with 1 roughing stand, 3-high, 600-mm, and 4 finishing stands, 2-high, 450-mm; 1 small bar mill with 1 roughing stand, 3-high, 450-mm, and 6 finishing stands, 2-high, 300-mm; 1 wire rod mill with 3 roughing stands, 2-high, 340-mm as well as 4 intermediate stands,

S-E-C-R-E-T

S-E-C-R-E-T

2-high, 250-mm, and 4 finishing stands, 2-high, 250-mm. Sheet mills are of the old-style type. Sheet mill shop No. 1 contains 10 stands, 2-high, 600-mm; Sheet mill shop No. 2 contains 5 stands, 2-high, 600-mm. Cold rolling facilities are listed as 1 Krupp cold rolling mill, 4-high; 2 Schmitz cold rolling mills, 4-high; and 1 Schmitz cold rolling mill, 2-high. There is a separate wire shop, modernized shortly before World War II and now considerably expanded. 33/ Wire drawing installations consist of 725 reels and 13 annealing furnaces. 34/ There is a hot strip mill, 8 stands in line, rolls 1 m wide 35/, served by a continuous furnace. 36/ There are 5 annealing furnaces, as well as normalizing furnaces and pickling and tinning facilities for processing sheets and strip. 37/

1. Intraplant Services.

Incidental facilities include a calibrating shop for ball bearings, a tempering shop, a cable shop, a bimetal shop 38/, a gray iron foundry 39/, gas producers 40/, a fabricating shop, a forging and pressing shop, a refractory shop, a repair and machine shop, a consumer goods shop making items of consumer goods from mill products that otherwise would be waste, and a general laboratory controlling small laboratories located in the more important mill units. 41/ Water is derived from the Moscow Water Supply System, supplemented by two wells sunk in the plant area. 42/ Power is delivered by underground cable 43/ originating at the Central Powerplant in Moscow. There is a transformer station within the plant area. 44/ The works has a well-equipped railroad transport system which handles inputs of raw materials and dispatches the output of finished products. There is also a large motor transport fleet. 45/

j. Products and Production.

Sickle and Hammer plant produces steel in the following forms and qualities: Wire rods up to 20 mm in diameter; 46/ wire, including galvanized wire 0.4 mm to 2 mm in diameter, carding belt wire 0.23 mm to 0.6 mm in diameter, needle wire, motor winding wire, piano wire, telephone wire, 47/ parachute wire, 48/ and copper-clad wire, 49/ bars, including concrete reinforcing bars, 50/ calibrated bars up to 43 mm in diameter for ball bearings, 51/ rounds, squares, hexagons, and bar shapes 52/ (bars are produced at a rate of 7,500 MT per month; calibrated ball bearing stock bars are produced at a rate of 1,750 MT per month 53/); plates up to 150 cm wide, including armorplate, copper-clad plate, stainless, deep-drawing, and galvanized 54/; hot rolled and cold rolled sheets up to 150 cm wide, 55/ including copper-clad sheets; and hot rolled and cold rolled strip, 20 cm to 80 cm wide, by .08 mm to 1.5 mm thick 56/, including copper-clad strip 57/ (production of strip amounts to about 23,000 MT per year). Other products are rails, 58/ tinplate, 59/ and wire rope and cables up to 50 mm in diameter. Cable is produced at a rate of 420 MT per month. 60/ Steel castings in the form of

S-E-C-R-E-T

railroad crossovers, caterpillar track links, 61/ gears, 62/ and the like, represent an important part of the output of Sickle and Hammer. Some of the qualities and grades produced here are stainless and alloys, such as nickel-chrome, chrome-molybdenum, nickel-chrome-aluminum, 63/ magnet steel, nonmagnetic, heat-resistant, abrasion-resistant, electrical resistant, transformer quality, and so-called "pure iron" of the Armco type. 64/ A record of finished steel production at Sickle and Hammer is as follows:

<u>Thousand Metric Tons</u>	
1916	24
1928	76
1929	97 <u>65/</u>
1934	118
1935	142 <u>66/</u>
1936	191
1937	205
1938	214 <u>67/</u>
1948	187
1952	238 <u>68/</u>
1953 (est)	245

k. Distribution.

In general the products of Sickle and Hammer are consumed by the aircraft, automobile, tractor, armored vehicle, 69/ machine building, 70/ instrument making, machine tools, electrical, chemical, and agricultural implement industries. 71/ These industries are well represented throughout the highly industrialized district in and around Moscow. 72/ Specifically, this plant has made representative shipments of steel castings to the Kalinin plant in Moscow for use in pumps for the Volga-Don canal. The Moscow Dynamo plant is an important outlet for various rolled products. 73/ The Gorki Automobile plant is a customer for sheets and bars. 74/ The Budenny plant in Moscow consumes small shapes and bars for the construction of agricultural implements. 75/ Plates are shipped to Red Proletarian machine tool plant in Moscow. 76/

l. Plant Efficiency.

Sickle and Hammer seems to have acquired a well-merited reputation for progress and enterprise in steel manufacturing. Their outstanding achievement was the introduction of the use of oxygen to intensify open-hearth processing. 77/ A valuable economy was achieved through the judicious control of slag in the steel-making process, whereby the furnaces in this plant save 100 to 200 kg of ferromanganese per melt. 78/

S-E-C-R-E-T

S-E-C-R-E-T

After having been twice decorated for exemplary work, 79/ the rolling mill crews participating in all-Union competition made an especially good showing in May 1946. 80/ In steel production the plant has made progressively good showings from year to year; and in the first nine months and 12 days of 1949, the plant had produced an amount of steel equivalent to the entire planned production for 1950. 81/ Open-hearth plant No. 1 has been called the best open-hearth furnace department in the USSR. 82/ Through such devices as charging burnt lime and faggoting fine scrap, the melting period in exceptional cases has been reduced to a little more than 5 hours, with production of about 9 tons per sq m of hearth area. 83/ Keeping pace with ingot production, the plant produced 6,500 tons of rolled steel products above the 1949 plan. 84/ To dim this idealistic picture, there have been complaints because the wire rod mill experienced lost time due to failure of auxiliary service in the handling of finished products. 85/ Furthermore, as much as 30 percent of ball bearing stock has been reported as being of poor quality. 86/

m. Administration.

This plant is under the Ministry of Metallurgy. 87/

n. Personnel.

There were 12,000 employees in 1949, 88/ about half of them female. 89/ Gregori M. Ilyin was Director and Semyon Chesnokov was Chief Foreman in 1947. 90/ L.V. Marmorstein was Chief Engineer in 1949. 91/ Belozarov is head of the milling shop. Leonov is Party Organizer. 92/

37. Skopin Mining Machinery Factory. (IR 7000811)

a. Location.

53°50' N - 39°32' E, Skopin, Ryazan Oblast, Central Industrial Region, RSFSR, USSR. 1/

b. History and Development.

The first plant buildings on this site were erected before World War I. 2/ Time of the installation of the steel foundry and electric furnace is unknown.

c. Raw Materials and Other Inputs.

Electricity is derived from local sources. Scrap was received from unknown sources in the amount of 6,000 MT in 1943. 3/

S-E-C-R-E-T

d. Coal and Coke.

No information available.

e. Ironmaking Facilities.

None.

f. Steelmaking Facilities.

The steel foundry at this plant is equipped with 1 electric furnace of 5 tons capacity. 4/ Estimated steel production in 1953 is 5,000 MT.

g. Primary Rolling Mills.

None.

h. Finishing Facilities.

Steel foundry.

i. Intraplant Services.

No information available.

j. Products and Production.

Products are exclusively steel castings for mining machinery and mining equipment. 5/ The estimated production of finished steel castings is 3,000 MT in 1953.

k. Distribution.

Products of this foundry are consumed exclusively by the home plant. 6/

l. Plant Efficiency.

No information available.

m. Administration.

This plant is under the Ministry of Metallurgy. 7/

n. Personnel.

No information available.

S-E-C-R-E-T38. Tula Metallurgical Works (also known as Novo-Tul'ski Metallurgical Plant)  
(IR 7001411) 1/a. Location.

54°12' N - 37°36' E. This plant is located about 8 km southeast of Tula, in Tula Oblast, Central Industrial Region, RSFSR, USSR. The exact site is at the southeast limit of Krivoluchya, which is a suburb of Tula. The plant lies in a bend of the Upa River, and is split by a branch of the railroad between Tula and Uzlovaya. 2/

b. History and Development.

Ground was broken in 1934, with completion planned for 1937. 3/ The original program contemplated 2 blast furnaces with a total annual production of 483,000 MT. 4/

The first furnace, with a working volume of 930 cu m and approximate capacity of 900 MT per day, was blown in during 1936, 5/ and a duplicate furnace was completed 2 years later. 6/

These two furnaces as they existed before the evacuation at the onset of World War II are described as follows:

Furnace	Date of Blow-in	Working Volume in cu m	Diameter in mm			
			Hearth	Bosh	Stockline	Big Bell
No. 1	1936	930	7,000	7,850	5,410	3,960
No. 2	1938	930	7,000	7,850	5,410	3,960

On this basis these furnaces were rated at 600,000 MT total production per year. 7/ Movable equipment was evacuated to Magnitogorsk during August and September 1941 and everything not transferable was destroyed by the Germans. 8/ After the war the plant was restored promptly. Furnace No. 1 was rebuilt along the original lines, but furnace No. 2 was drastically revised in style. 9/

c. Raw Materials and Other Inputs.

Iron ore is readily available from local minor deposits in the Tula and Lipetsk Oblasts. 10/ Specific mines that furnish iron ore for this operation are Barsukov, Kireyev, and Bogoroditsk. 11/ Limestone for the blast furnaces and scrap for the foundry are supplied from unknown sources. 12/ Water is derived from the Upa River, 13/ and electric power is furnished by the local powerplant. 14/

S-E-C-R-E-T

S-E-C-R-E-T

d. Coal and Coke.

Coke is shipped from Stalino, about 800 km away. 15/ Coal for power and miscellaneous purposes also comes from the Donets Basin. 16/

e. Ironmaking Facilities.

When these furnaces were rebuilt after the war, No. 1 was constructed more or less along the lines of the original and now has a working volume of 940 cu m. 17/ No. 2 was rebuilt along radically different lines and is very much smaller than the original. Although No. 2 now has a working volume of only 330 cu m, it is reported to produce almost as much tonnage as the original furnace. 18/ This is achieved through the use of special oxygen blowers, producing 30 percent oxygen-enriched air blast. Oxygen is produced here by a new process which supplies oxygen cheaply enough to justify this type of industrial use. This type of air blast almost doubles the normal productivity of the furnace, and incidentally reduces coke consumption by 25 percent. 19/ The total capacity of the two furnaces is reported as 550,000 MT per year, and that is the estimated production for 1953. 20/ It is noteworthy that No. 2 furnace was the first blast furnace in the USSR to employ oxygen-enriched air blast. 21/

f. Steelmaking Facilities.

None.

g. Primary Rolling Mills.

None.

h. Finishing Facilities.

None.

i. Intraplant Services.

When Tula Metallurgical Plant was built, a powerplant with a 24,000-kw, steam-driven turbogenerator was included as part of the original project. 22/ In 1947 a duplicate turbogenerator was installed, so that this powerplant now generates 48,000 kw. 23/ The powerplant is adjacent to the blast furnaces, to which power is carried by an overhead cable. 24/ Coal is used as fuel, although blast furnace gas also is utilized. 25/ This power plant serves the local population and various miscellaneous industries as well as Tula Metallurgical Works. 26/ Water is derived from the Upa River through a cast iron pipeline 75 cm in diameter. 27/ The plant is entered by a single-track, Soviet-gauge railroad, connecting with the main line between Tula and Uzlovaya. 28/ The various plant departments are served by a network of narrow-gauge railroad track. 29/

S-E-C-R-E-T

j. Products and Production.

These furnaces produce foundry iron and also basic iron for steelmaking. Iron is produced as pigs, 50 cm x 20 cm x 7 cm. 32/ A foundry associated with the blast furnace specializes in railroad cross-overs, frogs, switches, and similar castings. 33/ 34/ Agricultural implement castings also are made here. 35/

k. Distribution.

In addition to tonnage consumed by the plant foundry, pig iron from these furnaces is distributed rather widely. Among other customers are plants in Grozny serving the petroleum industry, the machinery plant of the Sovkhoz in Trubetskaya, Nalchik Plant No. 4, the Krasny Sulin plant, Salsk repair plant, a foundry at Armavir, the Pobeda plant at Stalino, various Leningrad plants which are producing electrical equipment for powerplants on the Volga River, and the furnaces at Elektrostal. 36/ 37/

l. Plant Efficiency.

The plant foundry was awarded the Challenge Red Banner and first prize, and the blast furnaces were awarded the second prize, for outstanding performance in December 1946 competition. 38/ 39/ The blast furnaces won the third prize in May 1947. 40/

In February 1947 the pendulum swung the other way, and the foundry lost the Challenge Red Banner for not fulfilling the conditions of competition. 41/ Blast furnace workers pledged to achieve a coefficient of 1.05 (plan was 1.12) for the last half of 1948. 42/

m. Administration.

This plant operates under the Ministry of Metallurgy. 43/

n. Personnel.

There were 3,000 employees in 1937 operating on 3 shifts. 44/ Veligura was Director in 1944, 45/ J. Dementiev was Director in 1946, 46/ and Danchenko was Director in 1947. 47/

39. Vladimir Tractor Plant (also known as Zhdanov Tractor Plant). 1/  
(IR 7019504)

a. Location.

56°10' N - 40°25' E. This plant is situated on the northern outskirts of the city of Vladimir, Vladimir Oblast, Central Industrial Region, RSFSR, USSR. 2/

S-E-C-R-E-T

b. History and Development.

Construction of this plant was started in 1944 and was completed in 1949. This enterprise is an important producer of tractors. 3/

c. Raw Materials and Other Inputs.

Raw materials for the steel foundry at this plant are pig iron and scrap. There is no available information about quantities or sources of these materials. 4/

d. Coal and Coke.

No information available.

e. Ironmaking Facilities.

The tractor plant operates two gray iron foundries, each of which is equipped with 2 or 3 cupolas. 5/

f. Steelmaking Facilities.

Located in one of the foundries is an electric furnace of German manufacture. This furnace is 5 m high and 3 m in diameter. It has an estimated capacity of 5 MT and produces steel for castings and forgings. The 1953 production is estimated at 5,000 MT. 6/

g. Primary Rolling Mills.

None.

h. Finishing Facilities.

There is a steel foundry and a forge shop with 6 hammers. 7/

i. Intraplant Services.

There is a machine shop with all necessary facilities. 8/ Power is derived from the same source that supplies the entire tractor-building complex. 9/

j. Products and Production.

Products to this furnace consist of castings for tractor parts and steel for tractor forgings. 10/ Production of finished steel is estimated at 3,000 MT per year.

S-E-C-R-E-T

S-E-C-R-E-T

k. Distribution.

All steel produced here is consumed by the home plant in the construction of tractors. 11/

l. Plant Efficiency.

No information available.

m. Administration.

This plant is subordinated to the Ministry of Machine Building. 12/

n. Personnel.

As of 1949, the Director was Kliminkov, the Assistant Director was Severov, and Foreman of the Foundry was Druning. 13/

40. Voronezh Machinery Factory (also known as Komintern Machine Building Plant). 1/ (IR 7018770)

a. Location.

51°38' N - 39°12' E. This plant is situated in the northwest quarter of Voronezh, 2/ Voronezh Oblast, Central Industrial Region, RSFSR, USSR. 3/

b. History and Development.

The plant appears to have been established in the early 1920's for the purpose of producing armored vehicles, which represented the main output of the plant until 1942. 4/ Early in that year the plant was evacuated to the Urals, and the plant buildings were destroyed by the retreating Russians. Reconstruction was started in 1945 and was scheduled to be complete by 1950. 5/ Since the war the plant has been devoted to the production of excavating and other heavy machinery. 6/ Two open-hearth furnaces were first installed here in 1933, each with 7.4 sq m hearth area. 7/ These furnaces were rebuilt later to a larger capacity. 8/

c. Raw Materials and Other Inputs.

Deliveries of raw materials include pig iron, iron and steel scrap, 9/ limestone, fluorspar, hematite iron ore, ferromanganese, ferrosilicon, and aluminum. All of these materials are shipped to Voronezh by rail. 10/

S-E-C-R-E-T

d. Coal and Coke.

Coke from Stalino 11/ and coal are received by rail. 12/

e. Ironmaking Facilities.

There is an iron foundry with two coke-fired cupolas. 13/

f. Steelmaking Facilities.

There is a steel foundry with 2 oil-fired open-hearth furnaces, 14/ each of 20 MT capacity. 15/ These furnaces have a steel-producing capacity of about 35,000 MT per year. 16/ They are tapped three times per day. 17/ Estimated steel production in 1953 is 35,000 MT.

g. Primary Rolling Mills.

None.

h. Finishing Facilities.

Steel Foundry.

i. Intraplant Services.

Power is derived from a powerplant in Voronezh. 18/ The plant is served by a switch from a Soviet-gauge railroad. 19/

j. Products and Production.

The steel foundry produces cast steel parts for excavating and other types of heavy machinery. 20/ The estimated 1953 output of finished steel castings is 20,000 MT. 21/

k. Distribution.

Steel produced here is consumed exclusively by the home plant. 22/

l. Plant Efficiency.

No information available.

m. Administration.

This plant is under the Ministry of Transport and Heavy Machine Building. 23/

S-E-C-R-E-T

n. Personnel.

The Works Director in 1949 was Sokhin. 24/

41. Vyksa Metallurgical Works (IR 7014103).

a. Location.

55° 21' N - 42° 12' E, Vyksa, Gorki Oblast, Central Industrial Region, RSFSR, USSR. 1/ The site is just east of town, beside a small lake. 2/ The Moscow-Kazan Railroad runs past the plant. 3/

b. History and Development.

A metallurgical plant was founded here in 1885, and prior to the 1917 Revolution was known as Vyksa Works Corporation. 4/ The blast furnaces, some of the open-hearth furnaces, and most of the rolling mills date back to Czarist days. 5/ Open-hearth furnaces No. 5 and No. 6 were built in 1933 and 1934 respectively. 6/ The blast furnaces have discontinued operation from time to time, 7/ but it is believed that two of them are in operation today. 8/ This was the fourth plant in the USSR to produce welded pipe. 9/

c. Raw Materials and Other Inputs.

Iron ore comes from local pockets in the Vyksa Basin. Before World War II sinter was shipped from the Ural region. 10/ Scrap is derived from normal commercial sources. 11/

d. Coal and Coke.

In 1941 coke came from the Donets Basin. 12/ Local peat also is used as fuel. 13/

e. Ironmaking Facilities.

The two blast furnaces now believed to be operating are No. 1 with 118 cu m volume, and No. 3 with 132 cu m volume. 14/ The potential production of these furnaces was reported as 75,000 MT in 1941, 15/ and production is believed to have been 81,000 in 1953, based on a coefficient of 1.05.

f. Steelmaking Facilities.

There are 10 open-hearth furnaces with a total hearth area of 360 sq m. The capacity of these furnaces is 50 MT each, and the current annual production is 350,000 MT, 16/ contemplating slightly more than 2 heats per day per furnace.

S-E-C-R-E-T

A partial record of ingot production is as follows:

1934	122,900 MT	<u>17/</u>
1935	171,000 MT	<u>18/</u>
1938	184,438 MT	<u>19/</u>
1947	195,000 MT	<u>20/</u>
1948	242,000 MT	<u>21/</u>
1950	248,000 MT	<u>22/</u>
1953	350,000 MT	(est)

g. Primary Rolling Mills.

A 500-mm 2-high reversing mill serves as a breakdown mill for all finishing mills at this plant. 23/ 24/

h. Finishing Facilities.

Operating in connection with the breakdown mill is a bar mill with 3 intermediate 2-high stands, each 330-mm, and six 2-high finishing stands, 280/265-mm. 25/ This mill produces bars, shapes, and skelp. 26/

Other finishing mills are: No. 1 Lauth plate mill, 1-stand, 3-high, 700/500/700-mm; No. 2 Lauth plate mill, 1-stand, 3-high, 700/500/700-mm; 3 sheet mills, each 2-high, 480-mm; 27/ 1 butt-weld pipe mill; 28/ and 4 lap-weld pipe mills. 29/

i. Intraplant Services.

Auxiliary facilities include a plant for concentration of the local lean iron ore, a dolomite plant, 30/ gas producers, 31/ and a welding shop. 32/ Power is derived from a local powerplant, the capacity of which is unknown. 33/ Operating in close connection with the furnaces and mills is a fabricating and repair shop for the fabrication, assembly, and repairs of railroad rolling stock and armored vehicles. 34/

j. Products and Production.

The products of this plant are shapes, bars, plates (including armorplate), sheets (including roofing), skelp (as an intermediate product), and pipe, 35/ both butt-welded and lap-welded. 36/ Some cold drawn tubing in undetermined amount is produced from cold rolled strip shipped to Vyksa from an unknown source. 37/

Based on an output of 40,000 MT of tubes in 1942, 38/ output of hot rolled products in 1953 is believed to be distributed as follows:

Pipe and tubes 3/8" to 4" diameter	40,000 MT
Other products	210,000 MT
Total	<u>250,000 MT</u>

S-E-C-R-E-T

k. Distribution.

This plant supplies steel products to builders of railroad rolling stock, armored vehicles, and machinery. 39/ An important outlet is the adjacent shop that builds and repairs railroad cars and armored vehicles. 40/ Another important outlet is the State Auto Plant "Molotov" at Gorki, to which Vyksa has shipped as much as 84,000 MT in a year. 41/ Shipments of 4-inch gas pipe are made regularly to Rostov and Baku. 42/ Other destinations for pipe and tubes are Kuybyshev Power Station, 43/ Tsimlyansk GES, and Stalingrad GES. 44/

l. Plant Efficiency.

Some of the open-hearth furnaces are reported to be completing heats in 6 hours, as compared with a norm of 8 hours. 45/ The plant overfulfilled its complete metallurgical cycle plan during 1946. 46/ Pipe welding shop Section 1 was awarded a Second Premium for outstanding performance during the May 1947 competition. 47/ Pipe welding shop Section 2 received an award in the All-Union Socialist Competition in 1947. 48/

m. Administration.

The plant is administered by Trupostal 49/, under the Ministry of Metallurgy. 50/

n. Personnel.

There were 7,000 employees in 1941. 51/ The Director was Sharapov (in 1948). 52/ The Chief Engineer was Gorodetskiy (in 1949). 53/

42. Yaroslavl' Automobile Plant (also known as YAAZ). 1/ (IR 7005892)

a. Location.

57°35' N - 39°50' E, Yaroslavl', Yaroslavl' Oblast, Central Industrial Region, RSFSR, USSR. It is 2 km north of the railroad station in Yaroslavl', 2/ on the main line of the Moscow-Volagda Railroad. 3/

b. History and Development.

Electric furnace No. 1 was installed in 1934, electric furnace No. 2 in 1935. 4/ The plant appears to have suffered no war damage. 5/

c. Raw Materials and Other Inputs.

In 1944 about 6,000 MT of steel scrap was received by rail. 6/

d. Coal and Coke.

No information available.

e. Ironmaking Facilities.

None.

f. Steelmaking Facilities.

There are 2 electric furnaces of 3 tons capacity each. 7/ Estimated production of steel in 1953 is 6,000 MT. 8/ Each furnace has three electrodes. 9/

g. Primary Rolling Mills.

None.

h. Finishing Facilities.

Steel foundry.

i. Intraplant Services.

Electricity is derived from a central powerplant in Yaroslavl'. This plant supplies electricity to the town and all of its industries. 10/ Water comes through a tunnel from the Volga River, which is only a few km distant. 11/ The plant is serviced by a switch from the Moscow-Volagda Railroad. 12/

j. Products and Production.

The steel foundry in this plant produces steel castings for automobile trucks. 13/ Production in 1953 is estimated at 4,000 MT of finished steel castings. 14/

k. Distribution.

Steel production of this foundry is consumed exclusively by the home plant. 15/

l. Plant Efficiency.

No information available.

m. Administration.

Administration is by WATO, 16/ under the Ministry of Machine Building. 17/

n. Personnel.

No information available.

**Approved For Release 1999/09/02 : CIA-RDP79-01093A000500120001-0**

**Approved For Release 1999/09/02 : CIA-RDP79-01093A000500120001-0**

S-E-C-R-E-T

## APPENDIX A

SUMMARY TABLE

Capacity and Production, 1953

Thousand Metric Tons			
<u>1. Bezhitsa Locomotive Works</u>	<u>Number</u>	<u>Capacity</u>	<u>Production</u>
Metallurgical Coke		0	0
Byproduct Batteries	0		
Total Byproduct Ovens	0		
Beehive Ovens	0		
Pig Iron		0	0
Blast Furnaces	0		
Steel		100	100
Open-hearth Furnaces	4		
Converters	0		
Electric Furnaces	0		
Finishing Facilities:			65
400-mm roughing mill			
250-mm 3-high bar mill			
3-high skelp mill			
1 tube mill			
Powerplant Capacity, 35,000 kw			
<u>2. Chernaya Kholunitsa Iron Works</u>			
Metallurgical Coke		0	0
Byproduct Batteries	0		
Total byproduct Ovens	0		
Bee-hive Ovens	0		
Pig Iron		26	26
Blast Furnaces	1		
Steel		0	0
Open-hearth Furnaces		0	0
Converters		0	0
Electric Furnaces		0	0

S-E-C-R-E-T

S-E-C-R-E-TSUMMARY TABLECapacity and Production, 1953  
(Continued)

Thousand Metric Tons			
	<u>Number</u>	<u>Capacity</u>	<u>Production</u>
2. <u>Chernaya Kholunitsa Iron Works</u> (Continued)			
Finishing Mills		0	0
Powerplant Capacity, no information available			
3. <u>Chukhlinka Armament Plant</u>			
Metallurgical Coke		0	0
Byproduct Batteries	0		
Total Byproduct Ovens	0		
Beehive Ovens	0		
Pig Iron		0	0
Blast Furnaces	0		
Steel Ingots and Castings		30	30
Open-hearth Furnaces	0		
Converters	0		
Electric Furnaces	2		
Finishing Facilities			
Steel Foundry		18	18
Powerplant Capacity, none			
4. <u>Elektrostal Metallurgical Plant</u>			
Metallurgical Coke		0	0
Byproduct Batteries	0		
Total Byproduct Ovens	0		
Beehive Ovens	0		
Pig Iron		0	0
Blast Furnaces	0		

S-E-C-R-E-TSUMMARY TABLECapacity and Production, 1953  
(Continued)

Thousand Metric Tons			
	<u>Number</u>	<u>Capacity</u>	<u>Production</u>
4. <u>Elektrostal Metallurgical Plant</u> (Continued)			
Steel		97	92
Open-hearth Furnaces	2		
Converters	0		
Electric Furnaces	16	207	198
Total Steel		<u>304</u>	<u>290</u>
Finishing Facilities			
800-mm bloomer			200
1 heavy bar mill			
1 strip mill			
1 light bar mill			
Powerplant Capacity, 78,000 kw			
5. <u>Gorki Armament Plant</u>			
Metallurgical Coke		0	0
Byproduct Batteries	0		
Total Byproduct Ovens	0		
Beehive Ovens	0	0	0
Pig Iron		0	0
Blast Furnaces	0		
Steel Ingots and Castings		187	187
Open-hearth Furnaces	8		
Converters	0		
Electric Furnaces	0		
Finishing Facilities			
1 Billet Mill			52
Steel Foundry			60
Forge			
Total Finished Steel			<u>112</u>
Powerplant Capacity, none			

SUMMARY TABLECapacity and Production, 1953  
(Continued)

	Thousand Metric Tons		
	<u>Number</u>	<u>Capacity</u>	<u>Production</u>
6. <u>Gorki Bor Shipyard</u>			
Metallurgical Coke		0	0
Byproduct Batteries	0		
Total Byproduct Ovens	0		
Beehive Ovens	0		
Pig Iron		0	0
Blast Furnaces	0		
Steel		6	6
Open-hearth Furnaces	0		
Converters	0		
Electric Furnaces	2		
Finishing Facilities			4
Steel Foundry			
Powerplant Capacity, none			
7. <u>Gorki Heavy Equipment Plant</u>			
Metallurgical Coke		0	0
Byproduct Batteries	0		
Total Byproduct Ovens	0		
Beehive Ovens	0		
Pig Iron		0	0
Blast Furnaces	0		
Steel Ingots and Castings			
Open-hearth Furnaces	8	208	208
Converters	0		
Electric Furnaces	2	7	7
Total		<u>215</u>	<u>215</u>
Finishing Facilities			
1 Bar Mill, 510 mm			
1 Bar Mill, 350 mm			75
1 Plate Mill, 2 m			
Castings			60
Total			<u>135</u>
Powerplant Capacities, 4,000 kw			

S-E-C-R-E-TSUMMARY TABLECapacity and Production, 1953  
(Continued)

Thousand Metric Tons			
	<u>Number</u>	<u>Capacity</u>	<u>Production</u>
8. <u>Gorki Metallurgical Plant</u>			
Metallurgical Coke		0	0
Byproduct Batteries	0		
Total Byproduct Ovens	0		
Beehive Ovens	0		
Pig Iron		0	0
Blast Furnaces	0		
Steel			
Open-hearth Furnaces	1	30	30
Converters	0		
Electric Furnaces	2	15	15
Total		<u>45</u>	<u>45</u>
Finishing Facilities			
1 Bar Mill		20	
1 Plate Mill		36	
Total		<u>56</u>	
Powerplant Capacity, unknown			
9. <u>Gorki Sheet Rolling Mill</u>			
Metallurgical Coke		0	0
Byproduct Batteries	0		
Total Byproduct Ovens	0		
Beehive Ovens	0		
Pig Iron		0	0
Blast Furnaces	0		

- 95 -

S-E-C-R-E-T

S-E-C-R-E-TSUMMARY TABLECapacity and Production, 1953  
(Continued)

		Thousand Metric Tons	
	<u>Number</u>	<u>Capacity</u>	<u>Production</u>
9. <u>Gorki Sheet Rolling Mill</u> (Continued)			
Steel			
Open-hearth Furnace		0	0
Converters	0		
Electric Furnaces	0		
Finishing Facilities			
1 Strip or Sheet Mill		unknown	40
Powerplant Capacity, none			
10. <u>Gorki Wire Products Plant</u>			
Metallurgical Coke			
Byproduct Batteries		0	0
Total Byproduct Ovens	0		
Beehive Ovens	0		
Pig Iron			
Blast Furnaces	0	0	0
Steel			
Open-hearth Furnaces		0	0
Converters	0		
Electric Furnaces	0		
Finishing Facilities			
1 Rod Mill (wire)			
1 Hot Strip Mill (strip)			60
1 Cold Strip Mill (strip)			100
Total			<u>160</u>
Powerplant Capacity, 3,500 kw			

- 96 -

S-E-C-R-E-T

S-E-C-R-E-T

SUMMARY TABLE

Capacity and Production, 1953  
(Continued)

Thousand Metric Tons			
	<u>Number</u>	<u>Capacity</u>	<u>Production</u>
11. <u>Ivanovo Machine Building Plant</u>			
Metallurgical Coke		0	0
Byproduct Batteries	0		
Total Byproduct Ovens	0		
Beehive Ovens	0		
Pig Iron		0	0
Blast Furnaces	0		
Steel Ingots and Castings		4	4
Open-hearth Furnaces	0		
Converters	0		
Electric Furnaces	2		
Finishing Facilities			
Steel Foundry		2	2
Powerplant Capacity, no information available			
12. <u>Kirov Armored Vehicle Plant</u>			
Metallurgical Coke		0	0
Byproduct Batteries	0		
Total Byproduct Ovens	0		
Beehive Ovens	0		
Pig Iron		0	0
Blast Furnaces	0		
Steel		2	2
Open-hearth Furnaces			
Converters			
Electric Furnaces	1		
Finishing Facilities	0		
Finished Steel		1	1 (castings)
Powerplant Capacity, none			

- 97 -

S-E-C-R-E-T

S-E-C-R-E-T

SUMMARY TABLE

Capacity and Production, 1953  
(Continued)

Thousand Metric Tons			
	<u>Number</u>	<u>Capacity</u>	<u>Production</u>
13. <u>Kirs Rolling Mill</u>			
Metallurgical Coke		0	0
Byproduct Batteries	0		
Total Byproduct Ovens	0		
Beehive Ovens	0		
Pig Iron		0	0
Blast Furnaces	0		
Steel		90	90
Open-hearth Furnaces	2		
Converters	0		
Electric Furnaces	0		
Finishing Facilities			67
1 Heavy Bar Mill			
1 Light Bar Mill			
1 Old-style Sheet Mill			
Powerplant Capacity, 87,000 kw			
14. <u>Klimkovo Iron Works</u>			
Metallurgical Coke			
Byproduct Batteries			
Total Number of Ovens			
Pig Iron Capacity		16	16
Number of Blast Furnaces	1		
Steel Capacity			0
Number of Open-hearth Furnaces	0		
Number of Converters	0		
Powerplant Capacity, unknown			
Finished Steel Production			0
Rolling Mill Capacity			0

S-E-C-R-E-T

S-E-C-R-E-TSUMMARY TABLECapacity and Production, 1953  
(Continued)

Thousand Metric Tons			
	<u>Number</u>	<u>Capacity</u>	<u>Production</u>
15. <u>Kolomna Locomotive Works</u>			
Metallurgical Coke		0	0
Byproduct Batteries	0		
Total Byproduct Ovens	0		
Beehive Ovens	0		
Pig Iron		0	
Blast Furnaces	0		
Steel Ingots and Castings			
Open-hearth Furnaces	4	75	75
Converters	0		
Electric Furnaces	1	3	3
Total	5	<u>78</u>	<u>78</u>
Finishing Facilities			
Steel Foundry		21	21
Forge Shop		27	27
Total Finished Steel		<u>48</u>	<u>48</u>
Powerplant Capacity, 3,000 kw			
16. <u>Kosaya Gora Iron Works</u>			
Metallurgical Coke		0	0
Byproduct Batteries	0		
Total Byproduct Ovens	0		
Beehive Ovens	0		
Pig Iron		573	573
Blast Furnaces	3		
Steel		0	0
Open-hearth Furnaces			

- 99 -

S-E-C-R-E-T

S-E-C-R-E-T

SUMMARY TABLE

Capacity and Production, 1953  
(Continued)

		Thousand Metric Tons		
	<u>Number</u>	<u>Capacity</u>	<u>Production</u>	
16. <u>Kosaya Gora Iron Works</u> (Continued)				
Converters	0	60		
Electric Furnaces	0			
Finishing Facilities	0			
Cast Iron Pipe Mill				
Powerplant Capacity, none				
17. <u>Kostroma Machine Building Plant</u>				
Metallurgical Coke		0	0	
Byproduct Batteries	0			
Total Byproduct Ovens	0			
Beehive Ovens	0			
Pig Iron		0	0	
Blast Furnaces	0			
Steel Ingots and Castings				
Open-Hearth Furnaces	1	16	16	
Converters	0			
Electric Furnaces	1	3	3	
Total	<u>2</u>	<u>19</u>	<u>19</u>	
Finishing Facilities				
Steel Foundry		10	10	
Powerplant Capacity, no information available				

- 100 -

S-E-C-R-E-T

S-E-C-R-E-TSUMMARY TABLECapacity and Production, 1953  
(Continued)

		Thousand Metric Tons		
	<u>Number</u>	<u>Capacity</u>	<u>Production</u>	
18. <u>Kulebaki Steel Plant</u>				
Metallurgical Coke	0	0	0	
Byproduct Batteries	0			
Total Byproduct Ovens	0			
Beehive Ovens	0			
Pig Iron		0	0	
Blast Furnaces	0			
Steel		270	270	
Open-hearth Furnaces	6			
Converters	0			
Electric Furnaces	0			
Finishing Facilities				
1 Rail and Structural Mill		unknown	200	
1 Bar Mill				
1 Plate Mill				
1 Tire Mill				
Powerplant Capacity, 12,000 kw				
19. <u>Lipetsk Metallurgical Plant</u>				
Metallurgical Coke		0	0	
Byproduct Batteries	0			
Total Byproduct Ovens	0			
Beehive Ovens	0			
Pig Iron		397	397	
Blast Furnaces	2			
Steel		0		
Open-hearth Furnaces	0			
Converters	0			
Electric Furnaces	0			

- 101 -

S-E-C-R-E-T

S-E-C-R-E-T

SUMMARY TABLE

Capacity and Production, 1953  
(Continued)

Thousand Metric Tons			
	<u>Number</u>	<u>Capacity</u>	<u>Production</u>
19. <u>Lipetsk Metallurgical Plant</u> (Continued)			
Finishing Facilities			
Cast Iron Pipe Foundry			
Powerplant Capacity, 3,000 kw			
20. <u>Lyublino Railroad Car Building Plant</u>			
Metallurgical Coke		0	0
Byproduct Batteries	0		
Total Byproduct Ovens	0		
Beehive Ovens	0		
Pig Iron		0	0
Blast Furnaces	0		
Steel Ingots and Castings		94	94
Open-hearth Furnaces	3	94	
Converters	0		
Electric Furnaces	2	6	6
Total		<u>100</u>	<u>100</u>
Finishing Facilities			
Steel Forge			65
Steel Foundry			
Powerplant Capacity, none			

S-E-C-R-E-T

S-E-C-R-E-TSUMMARY TABLECapacity and Production, 1953  
(Continued)

Thousand Metric Tons			
	<u>Number</u>	<u>Capacity</u>	<u>Production</u>
21. <u>Moscow Automobile Building Plant</u>			
Metallurgical Coke		0	
Byproduct Batteries	0		
Total Byproduct Ovens	0		
Beehive Ovens	0		
Pig Iron		0	
Blast Furnaces	0		
Steel Ingots and Castings		60	40
Open-hearth Furnaces	0		
Converters	0		
Electric Furnaces	2		
Finishing Facilities			24
Steel Foundry			
Powerplant Capacity, unknown			
22. <u>Moscow Electrical Equipment Plant</u>			
Metallurgical Coke		0	0
Byproduct Batteries	0		
Total Byproduct Ovens	0		
Beehive Ovens	0		
Pig Iron	0		
Blast Furnaces	0		
Steel Ingots and Castings		13	13
Open-hearth Furnaces	0		
Converters	0		
Electric Furnaces	2		
Finishing Facilities			8
Steel Foundry			
Powerplant Capacity, none			

- 103 -

S-E-C-R-E-T

S-E-C-R-E-T

SUMMARY TABLE

Capacity and Production, 1953  
(Continued)

Thousand Metric Tons			
	<u>Number</u>	<u>Capacity</u>	<u>Production</u>
23. <u>Moscow Machine Building Plant</u>			
Metallurgical Coke		0	0
Byproduct Batteries	0		
Total Byproduct Ovens	0		
Beehive Ovens	0		
Pig Iron		0	0
Blast Furnaces	0		
Steel Ingots and Castings		3	3
Open-hearth Furnaces	0		
Converters	0		
Electric Furnaces	1		
Finishing Facilities	0		
Steel Foundry		2	2
Powerplant Capacity, none			
24. <u>Moscow Shell Foundry</u>			
Metallurgical Coke		0	0
Byproduct Batteries	0		
Total Byproduct Ovens	0		
Beehive Ovens	0		
Pig Iron		0	0
Blast Furnaces	0		
Steel		24	24
Open-hearth Furnaces	0		
Converters	0		
Electric Furnaces	8		
Finishing Facilities			
Steel Foundry		14	14
Powerplant Capacity, unknown			

S-E-C-R-E-T

S-E-C-R-E-TSUMMARY TABLECapacity and Production, 1953  
(Continued)

Thousand Metric Tons			
	<u>Number</u>	<u>Capacity</u>	<u>Production</u>
25. <u>Moscow Tube Mill</u>			
Metallurgical Coke		0	0
Byproduct Batteries	0		
Total Byproduct Ovens	0		
Beehive Ovens	0		
Pig Iron		0	0
Blast Furnaces	0		
Steel		0	0
Open-hearth Furnaces		0	0
Converters		0	0
Electric Furnaces		0	0
Finishing Facilities		26	26
Cold Rolling Strip Mill	1		
Electric Weld Mills	2		
Furnace Butt-welding Mill	1		
Powerplant Capacity			
26. <u>Murom Forge Building Plant</u>			
Metallurgical Coke		0	0
Byproduct Batteries	0		
Total Byproduct Ovens	0		
Beehive Ovens	0		
Pig Iron		0	0
Blast Furnaces	0		
Steel Ingots and Castings		5	5
Open-hearth Furnaces	0		
Converters	0		
Electric Furnaces	1		

- 105 -

S-E-C-R-E-T

S-E-C-R-E-TSUMMARY TABLECapacity and Production, 1953  
(Continued)

		Thousand Metric Tons	
	<u>Number</u>	<u>Capacity</u>	<u>Production</u>
26. <u>Murom Forge Building Plant</u> (Continued)			
Finishing Facilities		3	3
Steel Foundry			
Powerplant Capacity, none			
27. <u>Murom Industrial Locomotive Plant</u>			
Metallurgical Coke		0	0
Byproduct Batteries	0		
Total Byproduct Ovens	0		
Beehive Ovens	0		
Pig Iron		0	0
Blast Furnaces	0		
Steel Ingots and Castings		5	5
Open-hearth Furnaces	0		
Converters	0		
Electric Furnaces	1		
Finishing Facilities		3	3
Steel Foundry			
Powerplant Capacity, unknown			
28. <u>Mytishchi Railroad Car Factory</u>			
Metallurgical Coke		0	0
Byproduct Batteries	0		
Total Byproduct Ovens	0		
Beehive Ovens	0		
Pig Iron		0	0
Blast Furnaces	0		

S-E-C-R-E-T

S-E-C-R-E-T

SUMMARY TABLE

Capacity and Production, 1953  
(Continued)

Thousand Metric Tons			
	<u>Number</u>	<u>Capacity</u>	<u>Production</u>
28. <u>Mytishchi Railroad Car Factory</u> (Continued)			
Steel Ingots and Castings		28	14
Open-hearth Furnaces	0		
Converters	2		
Electric Furnaces	0		
Finishing Facilities			
Steel Foundry			8
Powerplant Capacity, unknown			
29. <u>Novo-Lipetsk Metallurgical Plant</u>			
Metallurgical Coke		0	0
Byproduct Batteries	0		
Total Byproduct Ovens	0		
Beehive Ovens	0		
Pig Iron		672	672
Blast Furnaces	2		
Steel		0	0
Open-hearth Furnaces	0		
Converters	0		
Electric Furnaces	0		
Finishing Facilities	0		
Powerplant Capacity, none			

S-E-C-R-E-T

S-E-C-R-E-TSUMMARY TABLECapacity and Production, 1953  
(Continued)

Thousand Metric Tons			
	<u>Number</u>	<u>Capacity</u>	<u>Production</u>
30. <u>Novokramatorsk Machine Building Plant</u>			
Metallurgical Coke		0	0
Byproduct Batteries	0		
Total Byproduct Ovens	0		
Beehive Ovens	0		
Pig Iron		0	0
Blast Furnaces	0		
Steel Ingots and Castings			
Open-hearth Furnaces	1	34	34
Converters	0		
Electric Furnaces	4	42	42
Total	5	76	76
Finishing Facilities			
Foundry			21
Forge			25
Total			46
Powerplant Capacity, none			
31. <u>Omutninsk Metallurgical Works</u>			
Metallurgical Coke		0	0
Byproducts Batteries	0		
Total Byproduct Ovens	0		
Beehive Ovens	0		
Pig Iron		0	0
Blast Furnaces	0		

- 108 -

S-E-C-R-E-T

S-E-C-R-E-TSUMMARY TABLECapacity and Production, 1953  
(Continued)

		<u>Thousand Metric Tons</u>	
<u>31. Omutninsk Metallurgical Works</u>	<u>Number</u>	<u>Capacity</u>	<u>Production</u>
(Continued)			
Steel		125	125
Open-hearth Furnaces	3		
Converters	0		
Electric Furnaces	0		
Finishing Facilities			
Heavy Bar Mill )			
Medium Bar Mill )			
Small Bar Mill )			87
Sheet Mill )			
Powerplant Capacity, unknown			
<u>32. Orekhova-Zuyevo Foundry</u>			
Metallurgical Coke		0	0
Byproduct Batteries	0		
Total Byproduct Ovens	0		
Beehive Ovens	0		
Pig Iron		0	0
Blast Furnaces	0		
Steel Ingots and Castings			
Open-hearth Furnaces	0		
Converters	1	6	6
Electric Furnaces	1	4	4
Total	<u>2</u>	<u>10</u>	<u>10</u>
Finishing Facilities			
Steel Foundry		6	6
Powerplant Capacity, no information available			

- 109 -

S-E-C-R-E-T

S-E-C-R-E-TSUMMARY TABLECapacity and Production, 1953  
(Continued)

Thousand Metric Tons			
	<u>Number</u>	<u>Capacity</u>	<u>Production</u>
33. <u>Peskovko Iron Works</u>			
Metallurgical Coke		0	0
Byproduct Batteries	0		
Total Byproduct Ovens	0		
Beehive Ovens	0		
Pig Iron		20	20
Blast Furnaces	1		
Steel		0	0
Open-hearth Furnaces	0		
Converters	0		
Electric Furnaces	0		
Finishing Facilities	0		
Powerplant Capacity, none			
34. <u>Ramenskoye Metal Products Plant</u>			
Metallurgical Coke		0	0
Byproduct Batteries	0		
Total Byproduct Ovens	0		
Beehive Ovens	0		
Pig Iron		0	
Blast Furnaces	0		
Steel		15	15
Open-hearth Furnaces	1		
Converters	0		
Electric Furnaces	0		
Finishing Facilities			
3 Rolling Mills			43
Wire Drawing Facilities			
Powerplant Capacity, unknown			

S-E-C-R-E-T

S-E-C-R-E-TSUMMARY TABLECapacity and Production, 1953  
(Continued)

		<u>Thousand Metric Tons</u>	
	<u>Number</u>	<u>Capacity</u>	<u>Production</u>
35. <u>Shcherbakov Printing Machine</u>			
<u>Factory No. 808</u>			
Metallurgical Coke		0	0
Byproduct Batteries	0		
Total Byproduct Ovens	0		
Beehive Ovens	0		
Pig Iron		0	0
Blast Furnaces	0		
Steel Ingots and Castings		30	30
Open-hearth Furnaces	2		
Converters	0		
Electric Furnaces	0		
Finishing Facilities	0		
Steel Foundry			17
Powerplant Capacity, no information available			
36. <u>Sickle and Hammer</u>			
Metallurgical Coke		0	0
Byproduct Batteries	0		
Total Byproduct Ovens	0		
Beehive Ovens	0		
Pig Iron		0	0
Blast Furnaces	0		
Steel			
Open-hearth Furnaces	7	320	320
Converters	0		
Electric Furnaces	2	20	20
Total	2	<u>340</u>	<u>340</u>

- 111 -

S-E-C-R-E-T

S-E-C-R-E-T

SUMMARY TABLE

Capacity and Production, 1953  
(Continued)

Thousand Metric Tons			
	<u>Number</u>	<u>Capacity</u>	<u>Production</u>
36. <u>Sickle and Hammer</u> (Continued)			
Finishing Facilities			245
700 mm Bar Mill	1		
450 mm Bar Mill	1		
300 mm Bar Mill	1		
250 mm Rod Mill	1		
1-m Strip Mill	1		
Cold Rolling Mills	4		
Wire Drawing Facilities			
Powerplant Capacity, none			
37. <u>Skopin Mining Machinery Factory</u>			
Metallurgical Coke		0	0
Byproduct Batteries	0		
Total Byproduct Ovens	0		
Beehive Ovens	0		
Pig Iron		0	0
Blast Furnaces	0		
Steel Ingots and Castings		5	5
Open-hearth Furnaces	0		
Converters	0		
Electric Furnaces	1		
Finishing Facilities			
Steel Foundry		3	3
Powerplant Capacity, unknown			

S-E-C-R-E-TSUMMARY TABLECapacity and Production, 1953  
(Continued)

Thousand Metric Tons			
	<u>Number</u>	<u>Capacity</u>	<u>Production</u>
38. <u>Tula Metallurgical Works</u>			
Metallurgical Coke		0	0
Byproduct Batteries	0		
Total Byproduct Ovens	0		
Beehive Ovens	0		
Pig Iron		550	550
Blast Furnaces	2		
Steel		0	
Open-hearth Furnaces	0		
Converters	0		
Electric Furnaces	0		
Finishing Facilities			
Iron Foundry			
Powerplant Capacity, 48,000 kw			
39. <u>Vladimir Tractor Plant</u>			
Metallurgical Coke		0	0
Byproduct Batteries	0		
Total Byproduct Ovens	0		
Beehive Oven	0		
Pig Iron		0	0
Blast Furnaces	0		
Steel Ingots and Castings		5	5
Open-hearth Furnaces	0		
Converters	0		
Electric Furnaces	1		
Finishing Facilities			
Steel Foundry		3	3
Powerplant Capacity, unknown			

- 113 -

S-E-C-R-E-T

S-E-C-R-E-TSUMMARY TABLECapacity and Production, 1953  
(Continued)

Thousand Metric Tons			
	<u>Number</u>	<u>Capacity</u>	<u>Production</u>
40. <u>Voronezh Machinery Factory</u>			
Metallurgical Coke		0	0
Byproduct Batteries	0		
Total Byproduct Ovens	0		
Beehive Ovens	0		
Pig Iron		0	0
Blast Furnaces	0		
Steel Ingots and Castings		35	35
Open-hearth Furnaces	2		
Converters	0		
Electric Furnaces	0		
Finishing Facilities			
Steel Foundry		20	20
Powerplant Capacity, none			
41. <u>Vyksa Metallurgical Works</u>			
Metallurgical Coke		0	0
Byproduct Batteries	0		
Total Byproduct Ovens	0		
Beehive Ovens	0		
Pig Iron			
Blast Furnaces	2	81	81
Steel		350	350
Open-hearth Furnaces	6		
Converters	0		
Electric Furnaces	0		
Finishing Facilities			

- 114 -

S-E-C-R-E-T

S-E-C-R-E-T

SUMMARY TABLE

Capacity and Production, 1953  
(Continued)

Thousand Metric Tons			
<u>41. Vyksa Metallurgical Works</u>	<u>Number</u>	<u>Capacity</u>	<u>Production</u>
(Continued)			
Finishing Facilities			
Shape and Bar Mill	1		
Plate Mill	2		210
Sheet Mill	3		
Butt-weld Pipe Mill	1		40
Lap-weld Pipe Mill	4		
Total	<u>11</u>		<u>250</u>
Powerplant Capacity, unknown			
<u>42. Yaroslavl' Automobile Plant</u>			
Metallurgical Coke	0	0	0
Byproduct Batteries	0		
Total Byproduct Ovens	0		
Beehive Ovens	0		
Pig Iron			
Blast Furnaces	0	0	0
Steel Ingots and Castings		6	6
Open-hearth Furnaces	0		
Converters	0		
Electric Furnaces	2		
Finishing Facilities			
Steel Foundry		3	3
Powerplant Capacity, none			

S-E-C-R-E-T

**Approved For Release 1999/09/02 : CIA-RDP79-01093A000500120001-0**

**Approved For Release 1999/09/02 : CIA-RDP79-01093A000500120001-0**

~~SECRET~~

APPENDIX B

GAPS IN INTELLIGENCE

In general, post-World War II reports fail adequately to cover the modernization of the iron and steel industry in Region VII. The Iron Curtain has been extremely effective in hiding information that links prewar equipment and operations with the situation that prevails today. Specifically, there are important gaps in intelligence applying to certain plants as follows:

Plant No. 1 Bezhitsa Locomotive Works.

We are very much in the dark about details of steel-finishing facilities.

Plant No. 4 Elektrostal Metallurgical Plant.

There is little basis for determining the width of rolls of the strip mill, and consequently we do not know the maximum width of flat rolled products that this mill can turn out. We have no information about the sources or amounts of ferroalloys consumed in steel-manufacturing processes here.

Plant No. 5 Gorki Armament Plant.

We do not know the size of the rolling mill. The division of tonnage between castings and forgings is not revealed.

Plant No. 7 Gorki Heavy Equipment Plant.

The division of tonnage between rolled, forged, and cast products is not revealed.

Plant No. 8 Gorki Metallurgical Plant.

The only primary mill shown here is described as a billet mill, which may or may not produce the slabs that are rolled into plates on the plate mill. Details of both the bar mill and the plate mill are obscure.

~~SECRET~~

S-E-C-R-E-T

Plant No. 9 Gorki Sheet Rolling Mill.

There is confirming evidence that this mill was dismantled at an unknown location in East Germany, was installed at Gorki Bor, and was ready for operation at about the end of 1948. Aside from the belief that this almost certainly is a hot strip or sheet mill, there is nothing to indicate the size of the mill or the size limitations of its product. There is no information concerning the amount of tonnage produced, but based on the output of small sheet and strip mills in the USA, it seems reasonable to believe that the output of the Gorki Bor unit may be about 40,000 MT per year. There is no information about the source of slabs from which these sheets or strip are produced.

Plant No. 10 Gorki Wire Products Plant.

There is only vague information about the source and character of the material to be converted into cold rolled strip. The source of billets for the rod mill is not revealed. There is no detailed information about wire and wire product producing facilities.

Plant No. 13 Kirs Rolling Mill.

The size of ingots is not revealed, but it is presumed that they are small enough to be broken down on the first stand of the "heavy bar mill" into billets for the bar mills and slabs for the sheet mill. Details concerning the finishing mills are extremely limited. Although this plant apparently produces wire and wire products, there is no information about draw benches, nail machines, and the like.

Plant No. 16 Kosaya Gora Iron Works.

There is no definite information about the size or capacity of these three blast furnaces after they were rebuilt at the end of World War II.

Plant No. 18 Kulebaki Steel Plant.

There is no description of the blooming mill, nor is there any information about the sizes of products of the finishing mills.

Plant No. 30 Novokramatorsk Machine Building Plant.

The distribution of production between castings and forgings is not revealed.

S-E-C-R-E-T

Plant No. 34 Ramenskoye Metal Products Plant.

The tonnage of wire produced here is highly inconsistent with the amount of steel produced. It may be that additional open-hearth furnaces were built in 1942 when the wire production was to have been increased, or it may be that semifinished steel in the form of billets or wire rods is shipped here for finishing. None of the three rolling mills is indicated to be a primary or breakdown mill, and it seems likely that the open-hearth furnace casts small ingots which one of the three rolling mills converts into billets.

Plant No. 36 Sickle and Hammer.

There is no information about sources of raw materials consumed at this plant. There is no certainty about the sizes of mills producing plates, sheets, and strip. The distribution of tonnage among finished products is not revealed.

Plant No. 41 Vyksa Metallurgical Works.

The amount of pig iron produced at Vyksa seems to be insufficient to take care of steelmaking requirements at this plant. There is no indication of the source of supplementary pig iron, if any.

**Approved For Release 1999/09/02 : CIA-RDP79-01093A000500120001-0**

**Approved For Release 1999/09/02 : CIA-RDP79-01093A000500120001-0**

~~SECRET~~

## APPENDIX C

### METHODOLOGY

In the absence of convincing reports of capacity or production, sometimes it has been found necessary to develop estimates of tonnage. The principal elements of the methodology employed in estimating are described below.

When the volume of a blast furnace and a divisor are known, the production of pig iron may be calculated. The divisor represents the cu m of capacity required to produce 1 MT of pig iron, and when divided into the volume gives the production of pig iron in MT per day. Multiplying this by 340 (the average number of operating days per year) gives the annual production. This procedure is a device employed by the Soviets.

Two methods have been employed to determine the output of steelmaking furnaces. When the furnace tonnage capacity is known, this may be multiplied by the estimated number of taps (generally 2 to 3) per day, and the result multiplied by 325 (the average number of operating days per year) to give the annual production. Again we are indebted to the Soviets for the following alternate procedure. When the furnace hearth area (in sq m) and a coefficient of production are known, the production of steel may be calculated. The coefficient is a numerical expression of the MT of production per sq m per day, and when multiplied by the hearth area gives the production of steel per day. Multiplying this by 325 (the average number of operating days per year) gives the annual production.

When the production of finished rolled steel, forged steel, or finished steel castings is not known, this may be estimated by assuming a conversion loss of 25 percent to 45 percent (depending on the product and other factors) between poured steel and finished steel.

~~SECRET~~

**Approved For Release 1999/09/02 : CIA-RDP79-01093A000500120001-0**

**Approved For Release 1999/09/02 : CIA-RDP79-01093A000500120001-0**

~~SECRET~~

APPENDIX D

SOURCES AND EVALUATION OF SOURCES

I. Evaluation of Sources.

SDS and SDBS reports sometimes were relied on heavily for information. These reports often were questionable, although frequently confirmed or amplified by prisoner of war reports.

Prisoner of war reports generally were unreliable, but by piecing odd bits together sometimes a convincing picture would emerge.

Pre-World-War II technical publications were reliable when issued, but now are so out of date that they are practically valueless.

OO and SO reports were spotty. Sometimes they were very good and sometimes worthless.

Currently Soviet publications were of very limited value, because it was difficult, if not impossible, to convert their statements of percentage and relationships into hard and fast figures that might be helpful to this study. The Soviets continue to be very efficient at keeping the outside world in the dark about what is going on in their iron and steel industry.

II. Sources.

Evaluations, following the classification entry and designated "Eval.," have the following significance:

<u>Source of Information</u>	<u>Information</u>
A - Completely reliable	1 - Confirmed by other sources
B - Usually reliable	2 - Probably true
C - Fairly reliable	3 - Possibly true
D - Not usually reliable	4 - Doubtful
E - Not reliable	5 - Probably false
F - Cannot be judged	6 - Cannot be judged

Evaluations not otherwise designated are those appearing on the cited document; those designated "RR" are by the author of this report. No "RR" evaluation is given when the author agrees with the evaluation of the cited document.

~~SECRET~~

25X1A2g

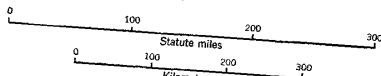
Approved For Release 1999/09/02 : CIA-RDP79-01093A000500120001-0

Next 30 Page(s) In Document Exempt

Approved For Release 1999/09/02 : CIA-RDP79-01093A000500120001-0

USSR: ECONOMIC REGION VII  
IRON AND STEEL PLANTS

- Blast furnace
- ▣ Steelmaking plant
- Rolling mill



SECRET

Shown on the map are locations and plants known to have ironmaking and steelmaking facilities.

- MOSCOW**
- ▣ Automobile plant
  - ▣ Elec. equipt. plant
  - ▣ Machine plant
  - ▣ Shell plant
  - ▣ Serp i Molot
  - ▣ Tube mill

